



STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF WATER RESOURCES  
William R. Snodgrass - Tennessee Tower  
312 Rosa L. Parks Avenue, 11<sup>th</sup> Floor  
Nashville, Tennessee 37243-1102

March 4, 2016

Mr. Harvey Wilson  
Water Quality Manager  
e-copy: [Hwilson@covingtontn.com](mailto:Hwilson@covingtontn.com)  
Covington STP  
PO Box 768  
Covington, TN 38019

Subject: **NPDES Permit No. TN0020982**  
**Covington STP**  
**Covington, Tipton County, Tennessee**

Dear Mr. Wilson:

In accordance with the provisions of the Tennessee Water Quality Control Act, Tennessee Code Annotated (T.C.A.), Sections 69-3-101 through 69-3-120, the Division of Water Resources hereby issues the enclosed NPDES Permit. The continuance and/or reissuance of this NPDES Permit is contingent upon your meeting the conditions and requirements as stated therein.

Please be advised that a petition for permit appeal may be filed, pursuant to T.C.A. Section 69-3-105, subsection (i), by the permit applicant or by any aggrieved person who participated in the public comment period or gave testimony at a formal public hearing whose appeal is based upon any of the issues that were provided to the commissioner in writing during the public comment period or in testimony at a formal public hearing on the permit application. Additionally, for those permits for which the department gives public notice of a draft permit, any permit applicant or aggrieved person may base a permit appeal on any material change to conditions in the final permit from those in the draft, unless the material change has been subject to additional opportunity for public comment. Any petition for permit appeal under this subsection (i) shall be filed with the Technical Secretary of the Water Quality, Oil and Gas Board within thirty (30) days after public notice of the commissioner's decision to issue or deny the permit. A copy of the filing should also be sent to TDEC's Office of General Counsel.

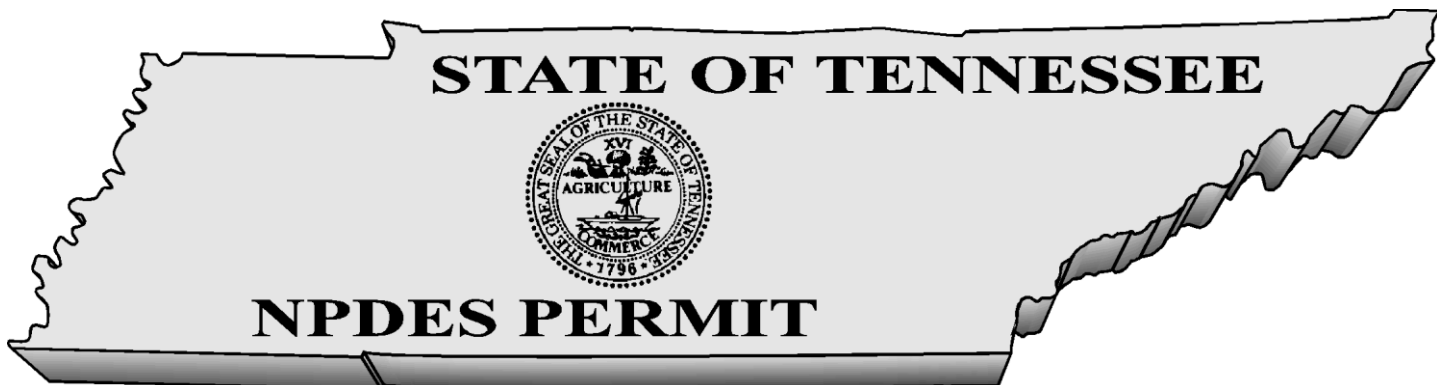
If you have questions, please contact the Memphis Environmental Field Office at 1-888-891-TDEC; or, at this office, please contact Ms. Ariel Wessel-Fuss at (615) 532-0642 or by E-mail at [Ariel.Wessel-Fuss@tn.gov](mailto:Ariel.Wessel-Fuss@tn.gov).

Sincerely,

Vojin Janjić  
Manager, Water-Based Systems

Enclosure

cc: Permit File  
Memphis Environmental Field Office  
NPDES Permit Section, EPA Region IV, [r4npdespermits@epa.gov](mailto:r4npdespermits@epa.gov)



**No. TN0020982**

Authorization to discharge under the  
National Pollutant Discharge Elimination System (NPDES)

Issued By

**STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF WATER RESOURCES  
William R. Snodgrass - Tennessee Tower  
312 Rosa L. Parks Avenue, 11<sup>th</sup> Floor  
Nashville, Tennessee 37243-1102**

Under authority of the Tennessee Water Quality Control Act of 1977 (T.C.A. 69-3-101 et seq.) and the delegation of authority from the United States Environmental Protection Agency under the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (33 U.S.C. 1251, et seq.)

Discharger: **Covington STP**

is authorized to discharge: **treated municipal wastewater from Outfall 001**

from a facility located: **in Covington, Tipton County, Tennessee**

to receiving waters named: **unnamed tributary RM = 0.02 to Hatchie River at RM = 35.2**

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on: **April 1, 2016**

This permit shall expire on: **March 31, 2019**

Issuance date: **March 1, 2016**

A handwritten signature in blue ink, appearing to read "Tisha Calabrese Benton", is written over a horizontal line.

**for Tisha Calabrese Benton  
Director**

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## 1.0. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

### 1.1. NUMERIC AND NARRATIVE EFFLUENT LIMITATIONS

The permittee is authorized to discharge treated municipal wastewater from Outfall 001 to the unnamed tributary RM = 0.02 which flows to Hatchie River at RM = 35.2. Discharge 001 consists of municipal wastewater from a treatment facility with a design capacity of 3.62 MGD. Discharge 001 shall be limited and monitored by the permittee as specified below:

**Description : External Outfall, Number : 001, Monitoring : All Weather, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Bypass of Treatment	Report	-	occur/mo	Occurrences	Continuous	Monthly Total

**Description : External Outfall, Number : 001, Monitoring : Dry Weather, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Overflow use, occurrences	Report	-	occur/mo	Occurrences	Continuous	Monthly Total

**Description : External Outfall, Number : 001, Monitoring : Effluent Gross, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
BOD, 5-day, 20 C	<=	40	mg/L	Composite	Three Per Week	Weekly Average
BOD, 5-day, 20 C	<=	1,208	lb/d	Composite	Three Per Week	Weekly Average
BOD, 5-day, 20 C	<=	906	lb/d	Composite	Three Per Week	Monthly Average
BOD, 5-day, 20 C	<=	30	mg/L	Composite	Three Per Week	Monthly Average
BOD, 5-day, 20 C	<=	45	mg/L	Composite	Three Per Week	Daily Maximum
Chlorine, total residual (TRC)	<=	0.97	mg/L	Grab	Five Per Week	Instantaneous Maximum
<i>E. coli</i>	<=	126	#/100mL	Grab	Three Per Week	Monthly Geometric Mean
<i>E. coli</i>	<=	487	#/100mL	Grab	Three Per Week	Daily Maximum
Flow	Report	-	Mgal/d	Continuous	Daily	Daily Maximum
Flow	Report	-	Mgal/d	Continuous	Daily	Monthly Average
IC25 Static Renewal 7 Day Chronic <i>Ceriodaphnia</i>	>	1.7	%	Composite	Annual	Minimum
IC25 Static Renewal 7 Day Chronic <i>Pimephales</i>	>	1.7	%	Composite	Annual	Minimum
Nitrogen, total (as N)	Report	-	lb/d	Composite	Quarterly	Quarterly Average
Nitrogen, total (as N)	Report	-	mg/L	Composite	Quarterly	Quarterly Average
Ammonia Nitrogen (as N)	Report	-	mg/L	Composite	Quarterly	Quarterly Average
Oxygen, dissolved (DO)	>=	1.0	mg/L	Grab	Five Per Week	Instantaneous Minimum

Phosphorus, total (as P)	Report	-	mg/L	Composite	Quarterly	Quarterly Average
Phosphorus, total (as P)	Report	-	lb/d	Composite	Quarterly	Quarterly Average
Settleable Solids	<=	1.0	mL/L	Grab	Five Per Week	Daily Maximum
Temperature rate of change deg. C/hr *	Report	-	deg C	Grab	Daily	Monthly Average
Temperature rate of change deg. C/hr*	Report	-	deg C	Grab	Daily	Daily Maximum
Temperature, water deg. C*	Report	-	deg C	Grab	Daily	Monthly Average
Temperature, water deg. C*	Report	-	deg C	Grab	Daily	Daily Maximum
Total Suspended Solids (TSS)	<=	1,208	lb/d	Composite	Three Per Week	Weekly Average
Total Suspended Solids (TSS)	<=	40	mg/L	Composite	Three Per Week	Weekly Average
Total Suspended Solids (TSS)	<=	906	lb/d	Composite	Three Per Week	Monthly Average
Total Suspended Solids (TSS)	<=	45	mg/L	Composite	Three Per Week	Daily Maximum
Total Suspended Solids (TSS)	<=	30	mg/L	Composite	Three Per Week	Monthly Average
pH	>=	6.0	SU	Grab	Five Per Week	Minimum
pH	<=	9.0	SU	Grab	Five Per Week	Maximum

**Description : External Outfall, Number : 001, Monitoring : Percent Removal, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
BOD, 5-day, 20 C, % removal	>=	85	%	Calculated	Three Per Week	Monthly Average Minimum
BOD, 5-day, 20 C, % removal	>=	40	%	Calculated	Three Per Week	Daily Minimum
TSS, % removal	>=	85	%	Calculated	Three Per Week	Monthly Average Minimum
TSS, % removal	>=	40	%	Calculated	Three Per Week	Daily Minimum

**Description : External Outfall, Number : 001, Monitoring : Raw Sewage Influent, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
BOD, 5-day, 20 C	Report	-	mg/L	Composite	Three Per Week	Daily Maximum
BOD, 5-day, 20 C	Report	-	mg/L	Composite	Three Per Week	Monthly Average
Flow	Report	-	Mgal/d	Continuous	Daily	Monthly Average
Flow	Report	-	Mgal/d	Continuous	Daily	Daily Maximum
Nitrogen, total (as N)	Report	-	lb/d	Composite	Quarterly	Quarterly Average
Nitrogen, total (as N)	Report	-	mg/L	Composite	Quarterly	Quarterly Average

Phosphorus, total (as P)	Report	-	mg/L	Composite	Quarterly	Quarterly Average
Phosphorus, total (as P)	Report	-	lb/d	Composite	Quarterly	Quarterly Average
Total Suspended Solids (TSS)	Report	-	mg/L	Composite	Three Per Week	Daily Maximum
Total Suspended Solids (TSS)	Report	-	mg/L	Composite	Three Per Week	Monthly Average

**Description : External Outfall, Number : 001, Monitoring : Wet Weather, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Overflow use, occurrences	Report	-	occur/mo	Occurrences	Continuous	Monthly Total

\* Note: The above temperature monitoring/reporting requirements to be consistent with Part 3.5.

Total residual chlorine (TRC) monitoring shall be applicable when chlorine, bromine, or any other oxidants are added. The acceptable methods for analysis of TRC are any methods specified in Title 40 CFR, Part 136 as amended. The method detection level (MDL) for TRC shall not exceed 0.05 mg/l unless the permittee demonstrates that its MDL is higher. The permittee shall retain the documentation that justifies the higher MDL and have it available for review upon request. In cases where the permit limit is less than the MDL, the reporting of TRC at less than the MDL shall be interpreted to constitute compliance with the permit.

The wastewater discharge must be disinfected to the extent that viable coliform organisms are effectively eliminated. The concentration of the *E. coli* group after disinfection shall not exceed 126 cfu per 100 ml as the geometric mean calculated on the actual number of samples collected and tested for *E. coli* within the required reporting period. The permittee may collect more samples than specified as the monitoring frequency. Samples may not be collected at intervals of less than 12 hours. For the purpose of determining the geometric mean, individual samples having an *E. coli* group concentration of less than one (1) per 100 ml shall be considered as having a concentration of one (1) per 100 ml. In addition, the concentration of the *E. coli* group in any individual sample shall not exceed a specified maximum amount. A maximum daily limit of 487 colonies per 100 ml applies to lakes and exceptional Tennessee waters. A maximum daily limit of 941 colonies per 100 ml applies to all other recreational waters.

There shall be no distinctly visible floating scum, oil or other matter contained in the wastewater discharge. The wastewater discharge must not cause an objectionable color contrast in the receiving stream.

The wastewater discharge shall not contain pollutants in quantities that will be hazardous or otherwise detrimental to humans, livestock, wildlife, plant life, or fish and aquatic life in the receiving stream.

Sludge or any other material removed by any treatment works must be disposed of in a manner that prevents its entrance into or pollution of any surface or subsurface waters. Additionally, the disposal of such sludge or other material must be in compliance with the Tennessee Solid Waste Disposal Act, TCA 68-31-101 *et seq.* and the Tennessee Hazardous Waste Management Act, TCA 68-46-101 *et seq.*



For the purpose of evaluating compliance with the permit limits established herein, where certain limits are below the State of Tennessee published required detection levels (RDLs) for any given effluent characteristics, the results of analyses below the RDL shall be reported as Below Detection Level (BDL), unless in specific cases other detection limits are demonstrated to be the best achievable because of the particular nature of the wastewater being analyzed.

For BOD<sub>5</sub> and TSS, the treatment facility shall demonstrate a minimum of 85% removal efficiency on a monthly average basis. This is calculated by determining an average of all daily influent concentrations and comparing this to an average of all daily effluent concentrations. The formula for this calculation is as follows:

$$\left[ 1 - \frac{\text{average of daily effluent concentration}}{\text{average of daily influent concentration}} \right] \times 100\% = \% \text{ removal}$$

The treatment facility will also demonstrate 40% minimum removal of the BOD<sub>5</sub> and TSS based upon each daily composite sample. The formula for this calculation is as follows:

$$\left[ 1 - \frac{\text{daily effluent concentration}}{\text{daily influent concentration}} \right] \times 100\% = \% \text{ removal}$$

## **1.2. MONITORING PROCEDURES**

### **1.2.1. Representative Sampling**

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to insure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to insure that the accuracy of the measurements is consistent with accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than plus or minus 10% from the true discharge rates throughout the range of expected discharge volumes.

Samples and measurements taken in compliance with the monitoring requirements specified above shall be representative of the volume and nature of the monitored discharge, and shall be taken at the following location(s):

Influent samples must be collected and monitored prior to mixing with any recycle streams using appropriate compositing and grab sampling techniques. For those systems with more than one influent line the permittee must collect flow-weighted samples from each line and composite the samples into a single influent sample based on respective flows. The permittee must use appropriate grab sampling as required for some parameters.

Effluent samples must be representative of the wastewater being discharged and collected prior to mixing with any other discharge or the receiving stream. This can

be a different point for different parameters, but must be after all treatment for that parameter or all expected change:

- a. The chlorine residual must be measured after the chlorine contact chamber and any dechlorination. It may be to the advantage of the permittee to measure at the end of any long outfall lines.
- b. Samples for *E. coli* can be collected at any point between disinfection and the actual discharge.
- c. The dissolved oxygen can drop in the outfall line; therefore, D.O. measurements are required at the discharge end of outfall lines greater than one mile long. Systems with outfall lines less than one mile may measure dissolved oxygen as the wastewater leaves the treatment facility. For systems with dechlorination, dissolved oxygen must be measured after this step and as close to the end of the outfall line as possible.
- d. Total suspended solids and settleable solids can be collected at any point after the final clarifier.
- e. Biomonitoring tests (if required) shall be conducted on final effluent.

#### **1.2.2. Sampling Frequency**

Where the permit requires sampling and monitoring of a particular effluent characteristic(s) at a frequency of less than once per day or daily, the permittee is precluded from marking the "No Discharge" block on the Discharge Monitoring Report if there has been any discharge from that particular outfall during the period which coincides with the required monitoring frequency; i.e. if the required monitoring frequency is once per month or 1/month, the monitoring period is one month, and if the discharge occurs during only one day in that period then the permittee must sample on that day and report the results of analyses accordingly.

#### **1.2.3. Test Procedures**

- a. Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304 (h) of the Clean Water Act (the "Act"), as amended, under which such procedures may be required.
- b. Unless otherwise noted in the permit, all pollutant parameters shall be determined according to methods prescribed in Title 40, CFR, Part 136, as amended, promulgated pursuant to Section 304 (h) of the Act.
- c. Composite samples must be proportioned by flow at time of sampling. Aliquots may be collected manually or automatically. The sample aliquots must be maintained at  $\leq 6$  degrees Celsius during the compositing period.
- d. In instances where permit limits established through implementation of applicable water criteria are below analytical capabilities, compliance with those

limits will be determined using the detection limits described in the TN Rules, Chapter 1200-4-3-.05(8).

#### **1.2.4. Recording of Results**

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date and time of sampling;
- b. The exact person(s) collecting samples;
- c. The dates and times the analyses were performed;
- d. The person(s) or laboratory who performed the analyses;
- e. The analytical techniques or methods used, and;
- f. The results of all required analyses.

#### **1.2.5. Records Retention**

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation shall be retained for a minimum of three (3) years, or longer, if requested by the Division of Water Resources.

### **1.3. REPORTING**

#### **1.3.1. Monitoring Results**

Monitoring results shall be recorded monthly and submitted monthly using Discharge Monitoring Report (DMR) forms supplied by the Division of Water Resources. Submittals shall be postmarked no later than 15 days after the completion of the reporting period. A completed DMR with an original signature shall be submitted to the following address:

**STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF WATER RESOURCES  
COMPLIANCE & ENFORCEMENT SECTION  
William R. Snodgrass - Tennessee Tower  
312 Rosa L. Parks Avenue, 11th Floor  
Nashville, Tennessee 37243-1102**

A copy of the completed and signed DMR shall be mailed to the Memphis Environmental Field Office (EFO) at the following address:

**STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF WATER RESOURCES  
Memphis Environmental Field Office  
8383 Wolf Lake Drive  
Bartlett, Tennessee 38133**

A copy should be retained for the permittee's files. In addition, any communication regarding compliance with the conditions of this permit must be sent to the two offices listed above.

The first DMR is due on the 15th of the month following permit effectiveness.

DMRs and any other information or report must be signed and certified by a responsible corporate officer as defined in 40 CFR 122.22, a general partner or proprietor, or a principal municipal executive officer or ranking elected official, or his duly authorized representative. Such authorization must be submitted in writing and must explain the duties and responsibilities of the authorized representative.

The electronic submission of DMR data will be accepted only if formally approved beforehand by the division. For purposes of determining compliance with this permit, data approved by the division to be submitted electronically is legally equivalent to data submitted on signed and certified DMR forms.

**1.3.2. Additional Monitoring by Permittee**

If the permittee monitors any pollutant specifically limited by this permit more frequently than required at the location(s) designated, using approved analytical methods as specified herein, the results of such monitoring shall be included in the calculation and reporting of the values required in the DMR form. Such increased frequency shall also be indicated on the form.

**1.3.3. Falsifying Results and/or Reports**

Knowingly making any false statement on any report required by this permit or falsifying any result may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Water Pollution Control Act, as amended, and in Section 69-3-115 of the Tennessee Water Quality Control Act.

**1.3.4. Monthly Report of Operation**

Monthly operational reports shall be submitted on standard forms to the appropriate Division of Water Resources Environmental Field Office in Jackson, Nashville, Chattanooga, Columbia, Cookeville, Memphis, Johnson City, or Knoxville. Reports shall be submitted by the 15th day of the month following data collection.

### **1.3.5. Bypass and Overflow Reporting**

#### **1.3.5.1. Report Requirements**

A summary report of known or suspected instances of overflows in the collection system or bypass of wastewater treatment facilities shall accompany the Discharge Monitoring Report. The report must contain the date and duration of the instances of overflow and/or bypassing and the estimated quantity of wastewater released and/or bypassed.

The report must also detail activities undertaken during the reporting period to (1) determine if overflow is occurring in the collection system, (2) correct those known or suspected overflow points and (3) prevent future or possible overflows and any resulting bypassing at the treatment facility.

On the DMR, the permittee must report the number of sanitary sewer overflows, dry-weather overflows and in-plant bypasses separately. Three lines must be used on the DMR form, one for sanitary sewer overflows, one for dry-weather overflows and one for in-plant bypasses.

#### **1.3.5.2. Anticipated Bypass Notification**

If, because of unavoidable maintenance or construction, the permittee has need to create an in-plant bypass which would cause an effluent violation, the permittee must notify the division as soon as possible, but in any case, no later than 10 days prior to the date of the bypass.

### **1.3.6. Reporting Less Than Detection**

A permit limit may be less than the accepted detection level. If the samples are below the detection level, then report "BDL" or "NODI =B" on the DMRs. The permittee must use the correct detection levels in all analytical testing required in the permit. The required detection levels are listed in the Rules of the Department of Environment and Conservation, Division of Water Resources, Chapter 1200-4-3-.05(8).

For example, if the limit is 0.02 mg/l with a detection level of 0.05 mg/l and detection is shown; 0.05 mg/l must be reported. In contrast, if nothing is detected reporting "BDL" or "NODI =B" is acceptable.

## **1.4. COMPLIANCE WITH SECTION 208**

The limits and conditions in this permit shall require compliance with an area-wide waste treatment plan (208 Water Quality Management Plan) where such approved plan is applicable.

## **1.5. REOPENER CLAUSE**

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections

301(b)(2)(C) and (D), 307(a)(2) and 405(d)(2)(D) of the Clean Water Act, as amended, if the effluent standard, limitation or sludge disposal requirement so issued or approved:

- a. Contains different conditions or is otherwise more stringent than any condition in the permit; or
- b. Controls any pollutant or disposal method not addressed in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

The division may reopen the permit to make modifications if warranted due to the gasification facility's operation/performance based on the permittee's DMR results. Also, the division may reopen the permit to make changes in the Outfall 001 ammonia nitrogen monitoring frequency/include discharge limits, if warranted. Permit modifications are subject to the division's applicable public participation procedures.

## **2.0. GENERAL PERMIT REQUIREMENTS**

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### **2.1. GENERAL PROVISIONS**

#### **2.1.1. Duty to Reapply**

Permittee is not authorized to discharge after the expiration date of this permit. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information and forms as are required to the Director of the Division of Water Resources (the "director") no later than 180 days prior to the expiration date. Such forms shall be properly signed and certified.

#### **2.1.2. Right of Entry**

The permittee shall allow the director, the Regional Administrator of the U.S. Environmental Protection Agency, or their authorized representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises where an effluent source is located or where records are required to be kept under the terms and conditions of this permit, and at reasonable times to copy these records;
- b. To inspect at reasonable times any monitoring equipment or method or any collection, treatment, pollution management, or discharge facilities required under this permit; and
- c. To sample at reasonable times any discharge of pollutants.

### **2.1.3. Availability of Reports**

Except for data determined to be confidential under Section 308 of the Federal Water Pollution Control Act, as amended, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Division of Water Resources. As required by the Federal Act, effluent data shall not be considered confidential.

### **2.1.4. Proper Operation and Maintenance**

- a. The permittee shall at all times properly operate and maintain all facilities and systems (and related appurtenances) for collection and treatment which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory and process controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. Backup continuous pH and flow monitoring equipment are not required.
- b. Dilution water shall not be added to comply with effluent requirements to achieve BCT, BPT, BAT and or other technology based effluent limitations such as those in State of Tennessee Rule 1200-4-5-.09.

### **2.1.5. Treatment Facility Failure (Industrial Sources)**

The permittee, in order to maintain compliance with this permit, shall control production, all discharges, or both, upon reduction, loss, or failure of the treatment facility, until the facility is restored or an alternative method of treatment is provided. This requirement applies in such situations as the reduction, loss, or failure of the primary source of power.

### **2.1.6. Property Rights**

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

### **2.1.7. Severability**

The provisions of this permit are severable. If any provision of this permit due to any circumstance, is held invalid, then the application of such provision to other circumstances and to the remainder of this permit shall not be affected thereby.

### **2.1.8. Other Information**

If the permittee becomes aware of failure to submit any relevant facts in a permit application, or of submission of incorrect information in a permit application or in any report to the director, then the permittee shall promptly submit such facts or information.

## **2.2. CHANGES AFFECTING THE PERMIT**

### **2.2.1. Planned Changes**

The permittee shall give notice to the director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
- b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants, which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1).

### **2.2.2. Permit Modification, Revocation, or Termination**

- a. This permit may be modified, revoked and reissued, or terminated for cause as described in 40 CFR 122.62 and 122.64, Federal Register, Volume 49, No. 188 (Wednesday, September 26, 1984), as amended.
- b. The permittee shall furnish to the director, within a reasonable time, any information which the director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the director, upon request, copies of records required to be kept by this permit.
- c. If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established for any toxic pollutant under Section 307(a) of the Federal Water Pollution Control Act, as amended, the director shall modify or revoke and reissue the permit to conform to the prohibition or to the effluent standard, providing that the effluent standard is more stringent than the limitation in the permit on the toxic pollutant. The permittee shall comply with these effluent standards or prohibitions within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified or revoked and reissued to incorporate the requirement.
- d. The filing of a request by the permittee for a modification, revocation, reissuance, termination, or notification of planned changes or anticipated noncompliance does not halt any permit condition.



### **2.2.3. Change of Ownership**

This permit may be transferred to another party (provided there are neither modifications to the facility or its operations, nor any other changes which might affect the permit limits and conditions contained in the permit) by the permittee if:

- a. The permittee notifies the director of the proposed transfer at least 30 days in advance of the proposed transfer date;
- b. The notice includes a written agreement between the existing and new permittees containing a specified date for transfer of permit responsibility, coverage, and liability between them; and
- c. The director, within 30 days, does not notify the current permittee and the new permittee of his intent to modify, revoke or reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

Pursuant to the requirements of 40 CFR 122.61, concerning transfer of ownership, the permittee must provide the following information to the division in their formal notice of intent to transfer ownership: 1) the NPDES permit number of the subject permit; 2) the effective date of the proposed transfer; 3) the name and address of the transferor; 4) the name and address of the transferee; 5) the names of the responsible parties for both the transferor and transferee; 6) a statement that the transferee assumes responsibility for the subject NPDES permit; 7) a statement that the transferor relinquishes responsibility for the subject NPDES permit; 8) the signatures of the responsible parties for both the transferor and transferee pursuant to the requirements of 40 CFR 122.22(a), "Signatories to permit applications"; and, 9) a statement regarding any proposed modifications to the facility, its operations, or any other changes which might affect the permit limits and conditions contained in the permit.

### **2.2.4. Change of Mailing Address**

The permittee shall promptly provide to the director written notice of any change of mailing address. In the absence of such notice the original address of the permittee will be assumed to be correct.

## **2.3. NONCOMPLIANCE**

### **2.3.1. Effect of Noncompliance**

All discharges shall be consistent with the terms and conditions of this permit. Any permit noncompliance constitutes a violation of applicable state and federal laws and is grounds for enforcement action, permit termination, permit modification, or denial of permit reissuance.

### **2.3.2. Reporting of Noncompliance**

a. 24-Hour Reporting

In the case of any noncompliance which could cause a threat to public drinking supplies, or any other discharge which could constitute a threat to human health or the environment, the required notice of non-compliance shall be provided to the Division of Water Resources in the appropriate Environmental Field Office within 24-hours from the time the permittee becomes aware of the circumstances. (The Environmental Field Office should be contacted for names and phone numbers of environmental response team).

A written submission must be provided within five days of the time the permittee becomes aware of the circumstances unless the director on a case-by-case basis waives this requirement. The permittee shall provide the director with the following information:

- i. A description of the discharge and cause of noncompliance;
- ii. The period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue; and
- iii. The steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

b. Scheduled Reporting

For instances of noncompliance which are not reported under subparagraph 2.3.2.a above, the permittee shall report the noncompliance on the Discharge Monitoring Report. The report shall contain all information concerning the steps taken, or planned, to reduce, eliminate, and prevent recurrence of the violation and the anticipated time the violation is expected to continue.

### 2.3.3. Overflow

- a. **"Overflow"** means any release of sewage from any portion of the collection, transmission, or treatment system other than through permitted outfalls.
- b. Overflows are prohibited.
- c. The permittee shall operate the collection system so as to avoid overflows. No new or additional flows shall be added upstream of any point in the collection system, which experiences chronic overflows (greater than 5 events per year) or would otherwise overload any portion of the system.
- d. Unless there is specific enforcement action to the contrary, the permittee is relieved of this requirement after: 1) an authorized representative of the Commissioner of the Department of Environment and Conservation has approved an engineering report and construction plans and specifications prepared in accordance with accepted engineering practices for correction of the

problem; 2) the correction work is underway; and 3) the cumulative, peak-design, flows potentially added from new connections and line extensions upstream of any chronic overflow point are less than or proportional to the amount of inflow and infiltration removal documented upstream of that point. The inflow and infiltration reduction must be measured by the permittee using practices that are customary in the environmental engineering field and reported in an attachment to a Monthly Operating Report submitted to the local TDEC Environmental Field Office. The data measurement period shall be sufficient to account for seasonal rainfall patterns and seasonal groundwater table elevations.

- e. In the event that more than 5 overflows have occurred from a single point in the collection system for reasons that may not warrant the self-imposed moratorium or completion of the actions identified in this paragraph, the permittee may request a meeting with the Division of Water Resources EFO staff to petition for a waiver based on mitigating evidence.

#### **2.3.4. Upset**

- a. "**Upset**" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b. An upset shall constitute an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the permittee demonstrates, through properly signed, contemporaneous operating logs, or other relevant evidence that:
  - i. An upset occurred and that the permittee can identify the cause(s) of the upset;
  - ii. The permitted facility was at the time being operated in a prudent and workman-like manner and in compliance with proper operation and maintenance procedures;
  - iii. The permittee submitted information required under "Reporting of Noncompliance" within 24-hours of becoming aware of the upset (if this information is provided orally, a written submission must be provided within five days); and
  - iv. The permittee complied with any remedial measures required under "Adverse Impact."

#### **2.3.5. Adverse Impact**

The permittee shall take all reasonable steps to minimize any adverse impact to the waters of Tennessee resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and

impact of the noncomplying discharge. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

#### 2.3.6. Bypass

- a. "**Bypass**" is the intentional diversion of waste streams from any portion of a treatment facility. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- b. Bypasses are prohibited unless all of the following 3 conditions are met:
  - i. The bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;
  - ii. There are no feasible alternatives to bypass, such as the construction and use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass, which occurred during normal periods of equipment downtime or preventative maintenance;
  - iii. The permittee submits notice of an unanticipated bypass to the Division of Water Resources in the appropriate Environmental Field Office within 24 hours of becoming aware of the bypass (if this information is provided orally, a written submission must be provided within five days). When the need for the bypass is foreseeable, prior notification shall be submitted to the director, if possible, at least 10 days before the date of the bypass.
- c. Bypasses not exceeding permit limitations are allowed **only** if the bypass is necessary for essential maintenance to assure efficient operation. All other bypasses are prohibited. Allowable bypasses not exceeding limitations are not subject to the reporting requirements of 2.3.6.b.iii, above.

#### 2.3.7. Washout

- a. For domestic wastewater plants only, a "washout" shall be defined as loss of Mixed Liquor Suspended Solids (MLSS) of 30.00% or more. This refers to the MLSS in the aeration basin(s) only. This does not include MLSS decrease due to solids wasting to the sludge disposal system. A washout can be caused by improper operation or from peak flows due to infiltration and inflow.
- b. A washout is prohibited. If a washout occurs the permittee must report the incident to the Division of Water Resources in the appropriate Environmental Field Office within 24 hours by telephone. A written submission must be provided

within five days. The washout must be noted on the discharge monitoring report. Each day of a washout is a separate violation.

## **2.4. LIABILITIES**

### **2.4.1. Civil and Criminal Liability**

Except as provided in permit conditions for "***Bypassing***," "***Overflow***," and "***Upset***," nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Notwithstanding this permit, the permittee shall remain liable for any damages sustained by the State of Tennessee, including but not limited to fish kills and losses of aquatic life and/or wildlife, as a result of the discharge of wastewater to any surface or subsurface waters. Additionally, notwithstanding this Permit, it shall be the responsibility of the permittee to conduct its wastewater treatment and/or discharge activities in a manner such that public or private nuisances or health hazards will not be created.

### **2.4.2. Liability Under State Law**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or the Federal Water Pollution Control Act, as amended.

## **3.0. PERMIT SPECIFIC REQUIREMENTS**

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### **3.1. CERTIFIED OPERATOR**

The waste treatment facilities shall be operated under the supervision of a certified wastewater treatment operator and the collection system shall be operated under the supervision of a certified collection system operator in accordance with the Water Environmental Health Act of 1984.

### **3.2. POTW PRETREATMENT PROGRAM GENERAL PROVISIONS**

As an update of information previously submitted to the division, the permittee will undertake the following activity.

- a. The permittee has been delegated the primary responsibility and therefore becomes the "control authority" for enforcing the 40 CFR 403 General Pretreatment Regulations. Where multiple plants are concerned the permittee is responsible for the Pretreatment Program for all plants within its jurisdiction. The permittee shall implement and enforce the Industrial Pretreatment Program in accordance with Section 403(b)(8) of the Clean Water Act, the Federal Pretreatment Regulations 40 CFR 403, Tennessee Water Quality Control Act Part 63-3-123 through 63-3-128, and the legal authorities, policies, procedures, and financial provisions contained in its approved Pretreatment Program, except

to the extent this permit imposed stricter requirements. Such implementation shall require but not limit the permittee to do the following:

- i. Carry out inspection, surveillance, and monitoring procedures which will determine, independent of information supplied by the industrial user (IU), whether the IU is in compliance with the pretreatment standards;
  - ii. Require development, as necessary, of compliance schedules for each IU for the installation of control technologies to meet applicable pretreatment standards;
  - iii. Require all industrial users to comply with all applicable monitoring and reporting requirements outlined in the approved pretreatment program and IU permit;
  - iv. Maintain and update, as necessary, records identifying the nature and character of industrial user discharges, and retain such records for a minimum of three (3) years;
  - v. Obtain appropriate remedies for noncompliance by an IU with any pretreatment standard and/or requirement;
  - vi. Publish annually, pursuant to 40 CFR 403.8 (f)(2)(viii), a list of industrial users that have significantly violated pretreatment requirements and standards during the previous twelve-month period.
  - vii. Maintain an adequate revenue structure for continued operation of the pretreatment program.
  - viii. Update its Industrial Waste Survey at least once every five years. Results of this update shall be submitted to the Division of Water Resources, Pretreatment Section within 120 days of the effective date of this permit, unless such a survey has been submitted within 3 years of the permit's effective date.
  - ix. Submit a written technical evaluation of the need to revise local limits within 120 days of the effective date of this permit to the state pretreatment program coordinator. The evaluation shall include the most recent pass-through limits proposed by the division. The technical evaluation shall be based on practical and specialized knowledge of the local program and not be limited by a specified written format.
- b. The permittee shall enforce 40 CFR 403.5, "prohibited discharges". Pollutants introduced into the POTW by a non-domestic source shall not cause pass through or interference as defined in 40 CFR Part 403.3. These general prohibitions and the specific prohibitions in this section apply to all non-domestic sources introducing pollutants into the POTW whether the source is subject to other National Pretreatment Standards or any state or local pretreatment requirements.

Specific prohibitions. Under no circumstances shall the permittee allow introduction of the following wastes in the waste treatment system:

- i. Pollutants which create a fire or explosion hazard in the POTW;
  - ii. Pollutants which will cause corrosive structural damage to the treatment works, but in no case discharges with pH less than 5.0 unless the system is specifically designed to accept such discharges.
  - iii. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the treatment system resulting in interference.
  - iv. Any pollutant, including oxygen-demanding pollutants (BOD, etc.) released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the treatment works.
  - v. Heat in amounts which will inhibit biological activity in the treatment works resulting in interference, but in no case heat in such quantities that the temperature at the treatment works exceeds 40°C (104°F) unless the works are designed to accommodate such heat.
  - vi. Any priority pollutant in amounts that will contaminate the treatment works sludge.
  - vii. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
  - viii. Pollutants which result in the presence of toxic gases, vapors or fumes within the POTW in a quantity that may cause acute worker health and safety problems;
  - ix. Any trucked or hauled pollutants except at discharge points designated by the POTW.
- c. The permittee shall notify the Tennessee Division of Water Resources of any of the following changes in user discharge to the system no later than 30 days prior to change of discharge:
- i. New introductions into such works of pollutants from any source which would be a new source as defined in Section 306 of the Act if such source were discharging pollutants.
  - ii. New introductions of pollutants into such works from a source which would be subject to Section 301 of the "Federal Water Quality Act as Amended" if it were discharging such pollutants.

- iii. A substantial change in volume or character of pollutants being introduced into such works by a source already discharging pollutants into such works at the time the permit is issued.

This notice will include information on the quantity and quality of the wastewater introduced by the new source into the publicly owned treatment works, and on any anticipated impact on the effluent discharged from such works. If this discharge necessitates a revision of the current NPDES permit or pass-through guidelines, discharge by this source is prohibited until the Tennessee Division of Water Resources gives final authorization.

d. Reporting Requirements

The permittee shall provide a semiannual report briefly describing the permittee's pretreatment program activities over the previous six-month period. Reporting periods shall end on the last day of the months of March and September. The report shall be submitted to the Division of Water Resources, Central Office and a copy to the appropriate Environmental Field Office no later than the 28th day of the month following each reporting period. For control authorities with multiple STPs, one report should be submitted with a separate Form 1 for each STP. Each report shall conform to the format set forth in the State POTW Pretreatment Semiannual Report Package which contains information regarding:

- i. An updated listing of the permittee's industrial users.
- ii. Results of sampling of the influent and effluent of the wastewater treatment plant. At least once each reporting period, the permittee shall analyze the wastewater treatment plant influent and effluent for the following pollutants, using the prescribed sampling procedures:

Pollutant	Sample Type
chromium, trivalent	24-hour composite
chromium, hexavalent	24-hour composite
total chromium	24-hour composite
copper	24-hour composite
lead	24-hour composite
nickel	24-hour composite
zinc	24-hour composite
cadmium	24-hour composite
mercury	24-hour composite
silver	24-hour composite
total phenols	grab
cyanide	grab



If any particular pollutant is analyzed more frequently than is required, the permittee shall report the maximum and average values on the semiannual report. All upsets, interferences, and pass-through violations must also be reported on the semiannual report, the actions that were taken to determine the causes of the incidents and the steps that have been taken to prevent the incidents from recurring.

At least once during the term of this permit, the permittee shall analyze the effluent from the STP (and report the results in the next regularly scheduled report) for the following pollutants:

chromium III	cyanide	phthalates, sum of the following: bis (2-ethylhexyl) phthalate butyl benzylphthalate di-n-butylphthalate diethyl phthalate
chromium VI	silver	
copper	benzene	
lead	carbon tetrachloride	
nickel	chloroform	
zinc	ethylbenzene	1,2 trans-dichloroethylene
cadmium	methylene chloride	tetrachloroethylene
mercury	naphthalene	toluene
phenols, total	1,1,1 trichloroethane	trichloroethylene
chromium, total		

- iii. Compliance with categorical and local standards, and review of industrial compliance, which includes a summary of the compliance status for all permitted industries. Also included is information on the number and type of major violations of pretreatment regulations, and the actions taken by the POTW to obtain compliance. The effluent from all significant industrial users must be analyzed for the appropriate pollutants at least once per reporting period.
- iv. A list of industries in significant non-compliance as published in local newspapers in accordance with the requirements set forth in 40 CFR 403.8(f)(2)(viii).
- v. A description of all substantive changes made to the permittee's pretreatment program. Any such changes shall receive prior approval. Substantive changes include, but are not limited to, any change in any ordinance, major modification in the program's administrative structure, local limits, or a change in the method of funding the program.
- vi. Summary of permittee's industrial user inspections, which includes information on the number and type of industry inspected. All significant industrial users must be inspected at least once per year.

### 3.3. BIOSOLIDS MANAGEMENT PRACTICES

All sludge and/or biosolids use or disposal must comply with 40 CFR 503 et seq. Biosolids shall be sampled and analyzed at a frequency dependent on the amount used annually.

Any facility that land applies non-exceptional quality biosolids must obtain an appropriate permit from the division in accordance with Chapter 0400-40-15.

- a. Reopener: If an applicable "acceptable management practice" or numerical limitation for pollutants in sewage sludge promulgated under Section 405(d)(2) of the Clean Water Act, as amended by the Water Quality Act of 1987, is more stringent than the sludge pollutant limit or acceptable management practice in this permit, or controls a pollutant not limited in this permit, this permit shall be promptly modified or revoked and reissued to conform to the requirements promulgated under Section 405(d)(2). The permittee shall comply with the limitations by no later than the compliance deadline specified in the applicable regulations as required by Section 405(d)(2) of the Clean Water Act.
- b. Notice of change in sludge disposal practice: The permittee shall give prior notice to the director of any change planned in the permittee's sludge disposal practice.

The current method of sludge disposal is to a municipal solid waste landfill (or co - composting facility). This method of disposal is controlled by the rules of the Tennessee Division of Solid Waste Management (DSWM) and Federal Regulations at 40 CFR 258. If the permittee anticipates changing its disposal practices to either land application or surface disposal, the Division of Water Resources shall be notified prior to the change. A copy of the results of pollutant analyses required by the Tennessee Division of Solid Waste Management (DSWM) and/or 40 CFR 258 shall be submitted to the Division of Water Resources.

### 3.4. BIOMONITORING REQUIREMENTS, CHRONIC

The permittee shall conduct a 3-Brood *Ceriodaphnia dubia* Survival and Reproduction Test and a 7-Day Fathead Minnow (*Pimephales promelas*) Larval Survival and Growth Test on samples of final effluent from Outfall 001.

The measured endpoint for toxicity will be the inhibition concentration causing 25% reduction in survival, reproduction and growth ( $IC_{25}$ ) of the test organisms. The  $IC_{25}$  shall be determined based on a 25% reduction as compared to the controls, and as derived from linear interpolation. The average reproduction and growth responses will be determined based on the number of *Ceriodaphnia dubia* or *Pimephales promelas* larvae used to initiate the test.

Test shall be conducted and its results reported based on appropriate replicates of a total of five serial dilutions and a control, using the percent effluent dilutions as presented in the following table:

Serial Dilutions for Whole Effluent Toxicity (WET) Testing					
4 X PL	2 X PL	Permit Limit (PL)	0.50 X PL	0.25 X PL	Control
% effluent					
6.8	3.4	1.7	0.85	0.42	0

**Note: IC25 Permit Limit >1.7% treated effluent**

The dilution/control water used will be moderately hard water as described in [Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms](#), EPA-821-R-02-013 (or the most current edition). A chronic standard reference toxicant quality assurance test shall be conducted with each species used in the toxicity tests and the results submitted with the discharge monitoring report. Additionally, the analysis of this multi-concentration test shall include review of the concentration-response relationship to ensure that calculated test results are interpreted appropriately.

Toxicity will be demonstrated if the IC<sub>25</sub> is less than or equal to the permit limit indicated for each outfall in the above table(s). Toxicity demonstrated by the tests specified herein constitutes a violation of this permit.

All tests will be conducted using a minimum of three 24-hour flow-proportionate composite samples of final effluent collected on days 1, 3 and 5. If, in any control more than 20% of the test organisms die in 7 days, the test (control and effluent) is considered invalid and the test shall be repeated within two (2) weeks. Furthermore, if the results do not meet the acceptability criteria in [Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms](#), EPA-821-R-02-013 (or the most current edition), or if the required concentration-response review fails to yield a valid relationship per guidance contained in [Method Guidance and Recommendations for Whole Effluent Toxicity \(WET\) Testing](#), EPA-821-B-00-004 (or the most current edition), that test shall be repeated. Any test initiated but terminated before completion must also be reported along with a complete explanation for the termination.

The toxicity tests specified herein shall be conducted annually for Outfall 001 and begin no later than 90 days from the permit's effective date.

**In the event of a test failure**, the permittee must start a follow-up test within 2 weeks and submit results from a follow-up test within 30 days from obtaining initial WET testing results. The follow-up test must be conducted using the same serial dilutions as presented in the corresponding table(s) above. **The follow-up test will not negate an initial failed test. In addition, the failure of a follow-up test will constitute a separate permit violation.**

In the event of 2 consecutive test failures or 3 test failures within a 12-month period for the same outfall, the permittee must initiate a Toxicity Identification Evaluation/Toxicity Reduction Evaluation (TIE/TRE) study within 30 days and so notify the division by letter. This notification shall include a schedule of activities for the initial investigation of that outfall. **During the term of the TIE/TRE study, the**

**frequency of biomonitoring shall be once every three months.** Additionally, the permittee shall submit progress reports once every three months throughout the term of the TIE/TRE study. The toxicity must be reduced to allowable limits for that outfall within 2 years of initiation of the TIE/TRE study. Subsequent to the results obtained from the TIE/TRE studies, the permittee may request an extension of the TIE/TRE study period if necessary to conduct further analyses. The final determination of any extension period will be made at the discretion of the division.

The TIE/TRE study may be terminated at any time upon the completion and submission of 2 consecutive tests (for the same outfall) demonstrating compliance. Following the completion of TIE/TRE study, the frequency of monitoring will return to a regular schedule, as defined previously in this section as well in Part I of the permit. **During the course of the TIE/TRE study, the permittee will continue to conduct toxicity testing of the outfall being investigated at the frequency of once every three months but will not be required to perform follow-up tests for that outfall during the period of TIE/TRE study.**

Test procedures, quality assurance practices, determinations of effluent survival/reproduction and survival/growth values, and report formats will be made in accordance with [Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms](#), EPA-821-R-02-013, or the most current edition.

Results of all tests, reference toxicant information, copies of raw data sheets, statistical analysis and chemical analyses shall be compiled in a report. The report will be written in accordance with [Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms](#), EPA-821-R-02-013, or the most current edition.

Two copies of biomonitoring reports (including follow-up reports) shall be submitted to the division. One copy of the report shall be submitted along with the discharge monitoring report (DMR). The second copy shall be submitted to the local Division of Water Resources office address (see table below):

Division of Water Resources			
Office	Location	Zip Code	Phone No.
Chattanooga	540 McCallie Avenue, Suite 550	37402-2013	(423) 634-5745
Jackson	1625 Hollywood Drive	38305	(731) 512-1300
Cookeville	1221 South Willow Avenue	38506	(931) 432-4015
Columbia	2484 Park Plus Drive	38401	(931) 380-3371
Johnson City	2305 Silverdale Road	37601	(423) 854-5400
Knoxville	3711 Middlebrook Pike	37921	(865) 594-6035
Memphis	8383 Wolf Lake Drive, Bartlett	38133-4119	(901) 371-3000
Nashville	711 R.S. Gass Boulevard	37243-1550	(615) 687-7000

### 3.5. DISCHARGE PERMIT REQUIREMENTS PURSUANT TO GASIFICATION FACILITY OPERATION

Pursuant to the requirements presented in this part, this permit authorizes increases in the Outfall 001 temperature due to the gasification facility's operation. However, the permittee must operate its gasification facility with due consideration for protecting the receiving stream from adverse impacts from the Outfall 001 temperature. The Outfall 001 discharge must not cause the temperature change in receiving stream(s) to exceed 3°C relative to an upstream control point. Also, the Outfall 001 discharge must not cause the receiving stream's temperature to exceed 30.5°C (except as a result of natural causes), and this discharge must not cause the maximum rate of temperature change in receiving streams to exceed 2°C per hour (except as a result of natural causes). The temperature rate of change can be evaluated against typically observed ambient effluent temperature (no gasification process). This permit includes temperature water quality considerations solely due to the operation of the permittee's recently installed gasification facility.

This permit requires that the permittee develop/submit to the division (at the offices shown in Part 1.3.1) a temperature monitoring and control plan within 90 days from its effective date. Within 90 days after receiving written approval of the temperature monitoring and control plan from the division, the permittee will begin implementing the plan. Pursuant to the permittee written request and with written division authorization, the above 90 day requirements may be extended without reopening the permit. The temperature evaluation program must include specific instream monitoring locations and corresponding sampling method(s), should such monitoring be warranted to demonstrate that the Outfall 001 discharge is not causing water quality temperature exceedances due to its gasification facility operation. It must also include a provision for at least annual summary report to the division (Memphis Environmental Field Office and central office at the addresses shown in Part 1.31.). The report must address the gasification facility's operation/performance, and results regarding Outfall 001 temperature and potential instream temperature impacts. Based on the permittee's DMR temperature results the division may reopen the permit (per Part 1.5) to include more specific gasification facility operational/performance requirements or investigational programs

It is important to note that a reported Outfall 001 discharge temperature that exceeds the receiving stream water quality temperature criteria does not translate directly to a permit violation. This is because the temperature standard is applicable to the instream temperature, not the discharge temperature. If the Outfall 001 temperature exceeds the water quality standards and the gasification facility is operating, then the permittee is required to implement instream temperature monitoring. Monitoring shall be consistent with its temperature evaluation program, to determine if the discharge is causing an instream temperature exceedance, and to implement a corrective action. As appropriate, the instream evaluations must address both the unnamed tributary (just upstream of the Outfall 001 discharge and just before its confluence with Hatchie River), and the Hatchie River (just upstream of its confluence with the unnamed tributary and downstream). The permittee must notify the Memphis Environmental Field Office (within 24 hours) if its gasification facility's operation has caused the Outfall 001 discharge temperature to result in an instream water quality temperature criteria exceedance.

### **3.6. PLACEMENT OF SIGNS**

Within sixty (60) days of the effective date of this permit, the permittee shall place and maintain a sign(s) at each outfall and any bypass/overflow point in the collection system. For the purposes of this requirement, any bypass/overflow point that has discharged five (5) or more times in the last year must be so posted. The sign(s) should be clearly visible to the public from the bank and the receiving stream. The minimum sign size should be two feet by two feet (2' x 2') with one-inch (1") letters. The sign should be made of durable material and have a white background with black letters.

The sign(s) are to provide notice to the public as to the nature of the discharge and, in the case of the permitted outfalls, that the discharge is regulated by the Tennessee Department of Environment and Conservation, Division of Water Resources. The following is given as an example of the minimal amount of information that must be included on the sign:

Permitted CSO or unpermitted bypass/overflow point:

**UNTREATED WASTEWATER DISCHARGE POINT**  
**Covington STP**  
**(901) 475-4965**  
**NPDES Permit NO. TN0020982**  
**TENNESSEE DIVISION OF WATER RESOURCES**  
**1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - Memphis**

**NPDES Permitted Municipal/Sanitary Outfall:**

**TREATED MUNICIPAL/SANITARY WASTEWATER – OUTFALL 001**  
**Covington STP**  
**(901) 475-4965**  
**NPDES Permit NO. TN0020982**  
**TENNESSEE DIVISION OF WATER RESOURCES**  
**1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - Memphis**

No later than sixty (60) days from the effective date of this permit, the permittee shall have the above sign(s) on display in the location specified.

### **3.7. ANTIDEGRADATION**

Pursuant to the Rules of the Tennessee Department of Environment and Conservation, Chapter 1200-4-3-.06, titled "Tennessee Antidegradation Statement," which prohibits the degradation of high quality surface waters and the increased discharges of substances that cause or contribute to impairment, the permittee shall further be required, pursuant to the terms and conditions of this permit, to comply with the effluent limitations and schedules of compliance required to implement applicable water quality standards, to comply with a State Water Quality Plan or other state or federal laws or regulations, or where practicable, to comply with a standard permitting no discharge of pollutants.

#### 4.0. DEFINITIONS AND ACRONYMS

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##### 4.1. DEFINITIONS

"**Biosolids**" are treated sewage sludge that have contaminant concentrations less than or equal to the contaminant concentrations listed in Table 1 of subparagraph (3)(b) of Rule 0400-40-15-.02, meet any one of the ten vector attraction reduction options listed in part (4)(b)1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 of Rule 0400-40-15-.04, and meet either one of the six pathogen reduction alternatives for Class A listed in part (3)(a)3, 4, 5, 6, 7, or 8, or one of the three pathogen reduction alternatives for Class B listed in part (3)(b)2, 3, or 4 of Rule 0400- 40-15-.04.

A "**bypass**" is defined as the intentional diversion of waste streams from any portion of a treatment facility.

A "**calendar day**" is defined as the 24-hour period from midnight to midnight or any other 24-hour period that reasonably approximates the midnight to midnight time period.

A "**composite sample**" is a combination of not less than 8 influent or effluent portions, of at least 100 ml, collected over a 24-hour period. Under certain circumstances a lesser time period may be allowed, but in no case, less than 8 hours.

The "**daily maximum concentration**" is a limitation on the average concentration in units of mass per volume (e.g. milligrams per liter), of the discharge during any calendar day. When a proportional-to-flow composite sampling device is used, the daily concentration is the concentration of that 24-hour composite; when other sampling means are used, the daily concentration is the arithmetic mean of the concentrations of equal volume samples collected during any calendar day or sampling period.

"**Discharge**" or "discharge of a pollutant" refers to the addition of pollutants to waters from a source.

A "**dry weather overflow**" is a type of sanitary sewer overflow and is defined as one day or any portion of a day in which unpermitted discharge of wastewater from the collection or treatment system other than through the permitted outfall occurs and is

not directly related to a rainfall event. Discharges from more than one point within a 24-hour period shall be counted as separate overflows.

**“Degradation”** means the alteration of the properties of waters by the addition of pollutants, withdrawal of water, or removal of habitat, except those alterations of a short duration.

**“De Minimis”** - Degradation of a small magnitude, as provided in this paragraph.

(a) Discharges and withdrawals

1. Subject to the limitation in part 3 of this subparagraph, a single discharge other than those from new domestic wastewater sources will be considered de minimis if it uses less than five percent of the available assimilative capacity for the substance being discharged.

2. Subject to the limitation in part 3 of this subparagraph, a single water withdrawal will be considered de minimis if it removes less than five percent of the 7Q10 flow of the stream.

3. If more than one activity described in part 1 or 2 of this subparagraph has been authorized in a segment and the total of the authorized and proposed impacts uses no more than 10% of the assimilative capacity, or 7Q10 low flow, they are presumed to be de minimis. Where the total of the authorized and proposed impacts uses 10% of the assimilative capacity, or 7Q10 low flow, additional degradation may only be treated as de minimis if the Division finds on a scientific basis that the additional degradation has an insignificant effect on the resource.

(b) Habitat alterations authorized by an Aquatic Resource Alteration Permit (ARAP) are de minimis if the Division finds that the impacts, individually and cumulatively are offset by impact minimization and/or in-system mitigation, provided however, in ONRWs the mitigation must occur within the ONRW.

An **“ecoregion”** is a relatively homogeneous area defined by similarity of climate, landform, soil, potential natural vegetation, hydrology, or other ecologically relevant variables.

The **“geometric mean”** of any set of values is the  $n^{\text{th}}$  root of the product of the individual values where “n” is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For the purposes of calculating the geometric mean, values of zero (0) shall be considered to be one (1).

A **“grab sample”** is a single influent or effluent sample collected at a particular time.



The "**instantaneous maximum concentration**" is a limitation on the concentration, in milligrams per liter, of any pollutant contained in the wastewater discharge determined from a grab sample taken from the discharge at any point in time.

The "**instantaneous minimum concentration**" is the minimum allowable concentration, in milligrams per liter, of a pollutant parameter contained in the wastewater discharge determined from a grab sample taken from the discharge at any point in time.

The "**monthly average amount**", shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar month when the measurements were made.

The "**monthly average concentration**", other than for *E. coli* bacteria, is the arithmetic mean of all the composite or grab samples collected in a one-calendar month period.

A "**one week period**" (or "**calendar-week**") is defined as the period from Sunday through Saturday. For reporting purposes, a calendar week that contains a change of month shall be considered part of the latter month.

"**Pollutant**" means sewage, industrial wastes, or other wastes.

A "**quarter**" is defined as any one of the following three-month periods: January 1 through March 31, April 1 through June 30, July 1 through September 30, and/or October 1 through December 31.

A "**rainfall event**" is defined as any occurrence of rain, preceded by 10 hours without precipitation that results in an accumulation of 0.01 inches or more. Instances of rainfall occurring within 10 hours of each other will be considered a single rainfall event.

A "**rationale**" (or "fact sheet") is a document that is prepared when drafting an NPDES permit or permit action. It provides the technical, regulatory and administrative basis for an agency's permit decision.

A "**reference site**" means least impacted waters within an ecoregion that have been monitored to establish a baseline to which alterations of other waters can be compared.

A "**reference condition**" is a parameter-specific set of data from regional reference sites that establish the statistical range of values for that particular substance at least-impacted streams.

A "**sanitary sewer overflow (SSO)**" is defined as an unpermitted discharge of wastewater from the collection or treatment system other than through the permitted outfall.

**“Sewage”** means water-carried waste or discharges from human beings or animals, from residences, public or private buildings, or industrial establishments, or boats, together with such other wastes and ground, surface, storm, or other water as may be present.

**“Severe property damage”** when used to consider the allowance of a bypass or SSO means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass or SSO. Severe property damage does not mean economic loss caused by delays in production.

**“Sewerage system”** means the conduits, sewers, and all devices and appurtenances by means of which sewage and other waste is collected, pumped, treated, or disposed.

**“Sludge”** or **“sewage sludge”** is solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works.

A **“subecoregion”** is a smaller, more homogenous area that has been delineated within an ecoregion.

**“Upset”** means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

The term, **“washout”** is applicable to activated sludge plants and is defined as loss of mixed liquor suspended solids (MLSS) of 30.00% or more from the aeration basin(s).

**“Waters”** means any and all water, public or private, on or beneath the surface of the ground, which are contained within, flow through, or border upon Tennessee or any portion thereof except those bodies of water confined to and retained within the limits of private property in single ownership which do not combine or effect a junction with natural surface or underground waters.

The **“weekly average amount”**, shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar week when the measurements were made.

The "**weekly average concentration**", is the arithmetic mean of all the composite samples collected in a one-week period. The permittee must report the highest weekly average in the one-month period.

#### 4.2. ACRONYMS AND ABBREVIATIONS

1Q10 – 1-day minimum, 10-year recurrence interval

30Q5 – 30-day minimum, 5-year recurrence interval

7Q10 – 7-day minimum, 10-year recurrence interval

BAT – best available technology economically achievable

BCT – best conventional pollutant control technology

BDL – below detection level

BOD<sub>5</sub> – five day biochemical oxygen demand

BPT – best practicable control technology currently available

CBOD<sub>5</sub> – five day carbonaceous biochemical oxygen demand

CEI – compliance evaluation inspection

CFR – code of federal regulations

CFS – cubic feet per second

CFU – colony forming units

CIU – categorical industrial user

CSO – combined sewer overflow

DMR – discharge monitoring report

D.O. – dissolved oxygen

*E. coli* – *Escherichia coli*

EFO – environmental field office

LB (lb) - pound

IC<sub>25</sub> – inhibition concentration causing 25% reduction in survival, reproduction and growth of the test organisms

IU – industrial user

IWS – industrial waste survey

LC<sub>50</sub> – acute test causing 50% lethality

MDL – method detection level

MGD – million gallons per day

MG/L (mg/l) – milligrams per liter

ML – minimum level of quantification

ml – milliliter

MLSS – mixed liquor suspended solids

MOR – monthly operating report

NODI – no discharge

NOEC – no observed effect concentration

NPDES – national pollutant discharge elimination system

PL – permit limit

POTW – publicly owned treatment works

RDL – required detection limit

SAR – semi-annual [pretreatment program] report

SIU – significant industrial user

SSO – sanitary sewer overflow

STP – sewage treatment plant

TCA – Tennessee code annotated

TDEC – Tennessee Department of Environment and Conservation

TIE/TRE – toxicity identification evaluation/toxicity reduction evaluation

TMDL – total maximum daily load

TRC – total residual chlorine

TSS – total suspended solids

WQBEL – water quality based effluent limit

## ADDENDUM TO RATIONALE

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Covington STP  
NPDES Permit No. TN0020982  
Permit Writer: Gary Davis /Ariel Wessel-Fuss

The division received the permittee's September 2, 2014 draft permit comments and questions letter on September 9, 2014. Additional permittee comments were received on October 6, 2014. Pursuant to discussions with the permittee and the permittee's consultant (James L. Cox P.E., Fisher & Arnold, Inc.), this Addendum to Rationale was written to present the division's responses for the permittee's comments, answer questions and provide permitting clarifications. As such, this Addendum to Rationale supplements the permit's Rationale and provides a basis for finalizing the permit. For reference, the permittee's September 2, 2014 letter and additional comments provided on October 6, 2014 are also provided in Appendix AD-1. The division's responses are provided below in **bold/italic** font. Also, this Addendum to Rationale presents the Part 3.5 as included in the draft permit and as finalized.

Following the draft permit going on public notice, the division noted that a "rare" mussel the "Southern Hickorynut" mussel is located in the Hatchie River, and therefore warrants permitting consideration as provided near the end of this Addendum to Rationale.

### **Permittee's Comment No. 1 (Letter Received on September 9, 2014)**

Where is the location for the continuous temperature monitoring per p. 2, and if the temperature criteria is applicable instream, why measure the Outfall 001 temperature?

### **Division's Response for Comment No. 1 (Letter Received on September 9, 2014)**

***For the reasons explained below, the temperature can be monitored at the WWTP location used for collecting the Outfall 001 BOD5 and TSS samples. Generally, the division wants the temperature monitoring to occur at the discharge point to the receiving stream, i.e., at the end of the 24 inch discharge pipe. However, the division understands that the discharge pipe's lower section is intermittently inundated due to high Hatchie River flows which may result in inaccurate temperature measurements, and present major safety issues for instrumentation maintenance. Intermittently, the permittee has monitored temperature from the discharge pipe's next manhole upstream, however that approach may also result in safety issues. Therefore, the treated effluent temperature can be monitored at the WWTP.***

***If the gasification facility is being operated and the permittee's Outfall 001 temperature presents a reasonable potential to violate the State's instream temperature water criteria, then pursuant to the permittee's temperature evaluation program instream (unnamed tributary and/or Hatchie River) temperature monitoring would be warranted. Permittees typically use instream grab samples to determine if water quality temperature criteria are being violated and for making additional operational changes.***

**Permittee's Comment No. 2 (Letter Received on September 9, 2014)**

As noted on p. 25, why is monthly average Outfall 001 temperature monitoring required and if temperature water quality is instream why measure Outfall 001's temperature?

**Division's Response for Comment No. 2 (Letter Received on September 9, 2014)**

*The division routinely requires that monthly monitoring results be reported for assessments related to chronic impacts, e.g., due to specific seasons (summer versus winter operation). See the division's response to No. 1 above for why measure Outfall 001's temperature is necessary.*

**Permittee's Comment No. 3 (Letter Received on September 9, 2014)**

How many instream (unnamed tributary and Hatchie River) monitoring points are required? How can the instream monitoring program begin from the permit's effective date, when the permit provides 60 days from its effective date for the permittee to submit its instream temperature program?

**Division's Response for Comment No. 3 (Letter Received on September 9, 2014)**

*As explained in its response to No. 1 above, if the gasification facility is operating and the Outfall 001 temperature results require additional action, the division expects that the permittee will proceed with its instream temperature evaluation program. Typically, permittees monitor upstream and downstream of their discharge to determine if the discharge is causing an adverse water quality temperature violation. The division understands that the permittee has experience already with its discharge temperature and has the ability to adjust its gasification facility usage if potential adverse instream temperature impacts might occur.*

*In finalizing the permit the division concurs with the permittee's request. As such, the finalized permit requires that permittee submit its temperature control program to the division's Memphis Environmental Field Office and Central Office within 90 days from the new permit's effective date. The temperature control program should include the instream locations to be used if temperature monitoring is required.*

**Permittee's Comment No. 4 (Letter Received on September 9, 2014)**

Why is an annual Gasification Facility summary report (p. 26) to be submitted to the division required? The permittee considers the Gasification Facility to be irrelevant to the WWTP's operation.

**Division's Response for Comment No. 4 ((Letter Received on September 9, 2014)**

*The division considers the gasification facility to potentially adversely impact the WWTP's performance, e.g., compliance with the Outfall 001 discharge limits for treated effluent E. coli and dissolved oxygen. Such impacts could be related to the seasons. The*

***potential impact would occur only when the gasification facility is in operation. Therefore, the annual report has been moved to the temperature evaluation program as a required component.***

**Permittee's Comment No. 5 (Letter Received on September 9, 2014)**

The permittee considers continuous temperature monitoring at multiple locations to be expensive and not justified. The permittee thinks that using WWTP effluent for cooling water is very unlikely to significantly impact the Hatchie River. The permittee wants a new draft permit that requires grab sampling when the Gasifier is operating, with clear monitoring locations identified.

**Division's Response for Comment No. 5 (Letter Received on September 9, 2014)**

***The finalized permit provides for temperature monitoring at the WWTP utilizing grab samples. However, the new permit does not require continuous temperature monitoring instream. Since the actual conditions vary (i.e., WWTP Outfall 001 flow, gasification facility operation, and instream conditions) the permittee must develop/submit its temperature control program within 90 from the new permit's effective date. The division will review the permittee's submittal and provide any comments/questions. If appropriate, the division does allow instream grab sampling for temperature monitoring.***

**Permittee's Comment No. 1 (Letter Received on October 6, 2014)**

The permittee requested that the division consider the hourly temperature monitoring results for the influent to chlorine contact chamber "ccc" and location "H-1" (the last manhole before the end of their 24 inch discharge pipe). When the gasifier was operating the permittee indicated that the average temperature increased from 0.9 – 1.1 °C.

**Division's Response for Comment No. 1 (Letter Received on October 6, 2014)**

***From the hourly results the division summarized the temperature monitoring data as follows for day's when the gasifier was in operation versus when it was shutdown:***



**Gasification Unit Operating (Full Capacity = 125 KW)**

Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	
Date	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	
2/6/2014														Gasification = 65 KW 52%
	8.7	8.8	9.0	8.8	8.7	9.2	9.2	9.2	8.7	8.7	8.9	8.4		average = 8.9
		0.1	0.2	-0.2	-0.1	0.5	0.0	0.0	-0.5	0.0	0.2	-0.5		max. hourly change = 0.5
2/25/2014														Gasification = 60 KW 48%
	11.2	11.7	12.5	12.6	12.6	12.7	13	12.7	13	12.7	12.6	12.6	12.8	average = 12.5
		0.5	0.8	0.1	0.0	0.1	0.3	-0.3	0.3	-0.3	-0.1	0.0	0.2	max. hourly change = 0.8

**Gasification Unit Not Operating (Full Capacity = 125 KW)**

Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	
Date	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	
1/15/2014														Gasification = 0 KW 0%
	11.8	11.8	11.7	11.7	11.7	11.8	11.8	11.9	12.0	12.0	12.0	12.0	12.0	average = 11.9
		0.0	-0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	max. hourly change = 0.1
2/12/2014														Gasification = 0 KW 0%
	7.9	7.9	8	8.1	8	8	8.1	8.1	8.2	8.2	8.2	8.3	8.3	average = 8.1
		0.0	0.1	0.1	-0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	max. hourly change = 0.1
2/17/2014														Gasification = 0 KW 0%
	10.3	10.3	10.5	10.5	10.5	10.6	10.6	10.8	10.8	10.9	10.9	11.0	11.1	average = 10.6
		0.0	0.2	0.0	0.0	0.1	0.0	0.2	0.0	0.1	0.0	0.1	0.1	max. hourly change = 0.2

***From the above results, the division would not expect a probable violation for the State's 3 temperature water quality criteria, assuming that the end of the 24 inch discharge pipe is inundated by the Hatchie River for these dates. As noted above for division's response for Comment No. 1, the temperature impact on the tributary is not applicable if its 24 inch pipe's end is inundated by the Hatchie River flow. The division expects this finding would be that the permittee's temperature evaluation program would indicate the Hatchie River stage.***

***The division is not directly concerned with the increased temperature in the chlorine contact chamber due to the gasification unit's operation, unless it interferes with its operation/performance.***

***As noted in the division's response to No. 1 above, temperature monitoring at the WWTP (at entrance to the permittee's 24 inch discharge pipe), gasification facility's operational status, and ambient receiving stream conditions should be sufficient as a basis for triggering any instream monitoring requirements.***

**Permittee's Comment No. 2 (Letter Received on October 6, 2014)**

The permittee calculated that for the permittee's current flow and the 204 mgd 7Q10 Hatchie River flow the instream dilution is almost 100:1, and an approximately 0.01 °C temperature change in Hatchie River would be expected. As such, the permittee believes that on-going temperature monitoring is not justified and no requirements should be included in the permit.

**Division's Response for Comment No. 2 (Letter Received on October 6, 2014)**

***Based on the permittee's design capacity 3.62 mgd the dilution afforded for discharge to the Hatchie River (at 7Q10 low flow conditions) would be  $204 \text{ mgd} / 3.62 \text{ mgd} = 56.4:1$ . When the Hatchie River inundates the permittee's 24 inch discharge pipe opening, the division considers this to amount to a direct discharge to the Hatchie River. This must be considered by the permittee in developing its temperature evaluation program, because the 7Q10 for the unnamed tributary is only 0.13 mgd, and almost all the water in the tributary under such low-flow conditions would be the permittee's treated wastewater. The permittee already monitors its treated effluent temperature based on grab samples at the WWTP, and records the results on its MORs that are submitted to the division's Memphis Environmental Field Office.***

***The new permit's Outfall 001 temperature monitoring requirements were included due to the newly installed gasification facility, which when operating will increase the discharge temperature. With the revised permit, the instream monitoring would only become necessary when triggered by the temperature evaluation program. The Division would expect such triggering mechanisms to include:***

- operational frequency of the gasification facility***
- adverse temperature impact to the WWTP operation or Performance***
- instream impacts***

**Draft Permit Part 3.5:**

**3.5. GASIFICATION FACILITY PERMIT AUTHORIZATION REQUIREMENTS**

This permit authorizes the gasification facility's operation and resulting Outfall 001 discharge temperature increase as explained below. The permittee must monitor/report temperature results to insure that the State's temperature water quality criteria are not violated pursuant to such operation. This permit does not authorize a discharge that results in exceeding the State's instream water quality temperature standards. As such, pursuant to the permit's effective date, the permittee must complete necessary temperature monitoring/evaluations to insure proper gasification facility operation/performance, such that the discharge allows the instream temperature water quality criteria to be retained. This permit does not necessarily authorize gasification facility's intermittent/continuous operation at various production levels, including its rated maximum capacity. Based on the permittee's DMR results the division may reopen the permit (per Part 1.5) to include more specific gasification facility operational/performance requirements or investigational programs.

The permittee must operate its gasification facility using proper discharge temperature water quality considerations for Outfall 001. The Outfall 001 discharge must not cause the temperature change in receiving stream(s) to exceed 3°C relative to an upstream control point. Also, the Outfall 001 discharge must not cause the receiving stream's temperature to exceed 30.5°C (except as a result of natural

causes), and this discharge must not cause the maximum rate of temperature change in receiving streams to exceed 2°C per hour (except as a result of natural causes). The permit includes continuous Outfall 001 discharge temperature monitoring requirements with the temperature water quality criteria being applicable instream.

The permittee must report its discharge temperature results in terms of monthly average and daily maximum values on its submitted Discharge Monitoring Report (DMRs). It is important to note that a reported Outfall 001 discharge temperature that exceeds the receiving stream water quality temperature criteria does not translate directly to a permit violation. This is because the temperature standard is applicable to the instream temperature, not the discharge temperature. If the Outfall 001 temperature exceeds the water quality standards, then the permittee is required to make/report instream temperature evaluations, e.g., measurements if appropriate, to determine any exceedance. As appropriate, the instream evaluations must address both the unnamed tributary (just upstream of the Outfall 001 discharge and just before its confluence with Hatchie River), and the Hatchie River (just upstream of its confluence with the unnamed tributary and downstream). The permittee must use its instream evaluation program when the permit becomes effective, and within 60 days from the permit's effective date provide the division with its instream temperature program. Subsequently, the permittee must use the division-approved instream temperature evaluation program, which may be updated as additional information becomes available. The division's approval(s) must be written. The permittee must notify the MEFO if its Outfall 001 discharge temperature has resulted in an instream water quality temperature criteria exceedance.

Annually, the permittee must submit a Gasification Facility summary report to the division (Memphis Environmental Field Office and central office at the addresses shown in Part 1.31.). The report is due by February 15 each year. The report must address the gasification facility's operation/performance, results regarding Outfall 001 temperature and corresponding instream temperature impacts.

**Finalized Permit Part 3.5 (Developed Pursuant to Clarifications Presented in this Addendum to Rationale:**

**3.5. DISCHARGE PERMIT REQUIREMENTS PURSUANT TO GASIFICATION FACILITY OPERATION**

Pursuant to the requirements presented in this part, this permit authorizes increases in the Outfall 001 temperature due to the gasification facility's operation. However, the permittee must operate its gasification facility with due consideration for protecting the receiving stream from adverse impacts from the Outfall 001 temperature. The Outfall 001 discharge must not cause the temperature change in receiving stream(s) to exceed 3°C relative to an upstream control point. Also, the Outfall 001 discharge must not cause the receiving stream's temperature to exceed 30.5°C (except as a result of natural causes), and this discharge must not cause the maximum rate of temperature change in receiving streams to exceed 2°C per hour (except as a result of natural causes). The temperature rate of change can be evaluated against typically observed ambient effluent temperature (no gasification process). This permit includes temperature water quality considerations solely due to the operation of the permittee's recently installed gasification facility.

This permit requires that the permittee develop/submit to the division (at the offices shown in Part 1.3.1) a temperature monitoring and control plan within 90 days from its effective date. Within 90 days after receiving written approval of the temperature monitoring and control plan from the division, the permittee will begin implementing the plan. Pursuant to the permittee written request and with written division authorization, the above 90 day requirements may be extended without reopening the permit. The temperature evaluation program must include specific instream monitoring locations and corresponding sampling method(s), should such monitoring be warranted to demonstrate that the Outfall 001 discharge is not causing water quality temperature exceedances due to its gasification facility operation. It must also include a provision for at least annual summary report to the division (Memphis Environmental Field Office and central office at the addresses shown in Part 1.31.). The report must address the gasification facility's operation/performance, and results regarding Outfall 001 temperature and potential instream temperature impacts. Based on the permittee's DMR temperature results the division may reopen the permit (per Part 1.5) to include more specific gasification facility operational/performance requirements or investigational programs

It is important to note that a reported Outfall 001 discharge temperature that exceeds the receiving stream water quality temperature criteria does not translate directly to a permit violation. This is because the temperature standard is applicable to the instream temperature, not the discharge temperature. If the Outfall 001 temperature exceeds the water quality standards and the gasification facility is operating, then the permittee is required to implement instream temperature monitoring. Monitoring shall be consistent with its temperature evaluation program, to determine if the discharge is causing an instream temperature exceedance, and to implement a corrective action. As appropriate, the instream evaluations must address both the unnamed tributary (just upstream of the Outfall 001 discharge and just before its confluence with Hatchie River), and the Hatchie River (just upstream of its confluence with the unnamed tributary and downstream). The permittee must notify the Memphis Environmental Field Office (within 24 hours) if its gasification facility's operation has caused the Outfall 001 discharge temperature to result in an instream water quality temperature criteria exceedance.

#### **Division's Permitting Considerations Due to the Southern Hickorynut Mussel**

The Southern Hickorynut mussel (*Obovaria jacksoniana*) has a State ranking of 1 and a Global ranking of 2, which makes it "extremely rare and critically imperiled in the state" and "very rare and imperiled in the world". Due to the mussel's status and occurrence in the Hatchie River, the division obtained additional treated effluent data from the permittee for the Outfall 001 discharge to determine if a reasonable potential adverse impact exists due to ammonia-nitrogen mussel inhibition/toxicity from the permittee's treated effluent.

Appendix AD-2 presents the division's evaluation results which demonstrate that Outfall 001 ammonia-nitrogen limits or additional monitoring are not warranted, based on its reasonable potential evaluation results, and the 12.2 mg/L NH<sub>3</sub>-N allowable discharge value. As shown in Appendix AD-2, the maximum treated effluent TKN (note that TKN = organic nitrogen + NH<sub>3</sub>-N) value under the warmer conditions (summer) was 4.68 mg/L which is substantially lower than the 12.2 mg/L NH<sub>3</sub>-N discharge require to protect the mussels in the Hatchie River.

The new permit includes Outfall 001 NH<sub>3</sub>-N reporting requirements on a quarterly basis. (The permittee already monitors its treated effluent TKN on a quarterly basis for reporting total nitrogen, and a different analytical method would be required for determining TKN via measuring the organic nitrogen and ammonia nitrogen). The permit reopener clause (Part 1.5) has been modified to allow the division to reopen the permit and make changes, e.g., increase the NH<sub>3</sub>-N monitoring frequency and/or include discharge limitations. Such changes pursuant to the reopener clause would be subject to the division's applicable public participation provisions.

## APPENDIX AD-1 PERMITTEE'S DRAFT PERMIT COMMENTS AND QUESTIONS

DAVID W. GORDON  
Mayor



TINA C. DUNN  
Recorder-Treasurer

*City of Covington*

POST OFFICE BOX 768  
200 West Washington Avenue, Covington, Tennessee 38019  
Telephone (901) 476-9613 Fax (901) 476-6699

September 2, 2014

TN DEPT OF ENVIRONMENT  
AND CONSERVATION  
SEP 09 2014  
DIV OF WATER RESOURCES  
RECEIVED

Mr. Gary Davis  
Tennessee Department of Environment and Conservation  
Division of Water Resources  
312 Rosa L. Parks Avenue, 11<sup>th</sup> Floor  
Nashville, TN 37243-1102

**RE: DRAFT NPDES PERMIT NO. TN0020982  
COVINGTON STP  
COVINGTON, TIPTON COUNTY, TENNESSEE**

Dear Mr. Davis:

The City of Covington has had an opportunity to review the draft NPDES Permit which was submitted on August 18, 2014. Our review has generated several questions and comments.

On Page 2, under monitoring requirements, continuous temperature monitoring is called for. Where is this monitoring to take place? The other samples at the Wastewater Treatment Plant (WWTP) are taken at the end of the chlorine contact basin. On Page 25, the Permit states "The Permit includes continuous Outfall 001 discharge temperature monitoring requirements with the water quality criteria being applicable instream." If the temperature criteria is applicable instream, what is the purpose of the Outfall 001 measurements?

In the last paragraph on Page 25, it states "The permittee must report its discharge temperature results in terms of monthly average and daily maximum values..." Why is an "average" temperature considered relevant? Also in this paragraph, it states that "It is important to note that a reported Outfall 001 discharge temperature that exceeds the receiving stream water quality temperature criteria does not translate to a permit violation." Then why require monitoring at Outfall 001?

Mr. Gary Davis  
September 2, 2014  
Page 2

TN DEPT OF ENVIRONMENT  
AND CONSERVATION  
SEP 09 2014  
DIV OF WATER RESOURCES  
RECEIVED

On Page 26, it states that evaluations must address the unnamed tributary and the Hatchie River. How many monitoring points are required? It also states in the same paragraph that the instream program must begin when the permit becomes effective, but it also states that "within 60 days from the permit's effective date provide the division with its instream temperature program." This is very confusing as to when actual monitoring is to begin.

In the second paragraph of Page 26, the draft permit requires "Annually, the permittee must submit a Gasification Facility summary report to the division..." Why is this required? In our opinion, the actual operation of the Gasification Facility is irrelevant to the operation of the WWTP.

The requirement for continuous monitoring of temperature at multiple locations would involve a considerable expense on behalf of the City. It is the City's position that it is very unlikely that utilizing the WWTP effluent for cooling water will significantly impact the Hatchie River, so that the expense of continuous monitoring is not justified.

The City is requesting that a new draft permit be prepared requiring grab samples when the Gasifier is operating and more clear direction where samples are to be collected.

We believe a meeting would be beneficial to the City and to the Division of Water Resources. We request that the meeting take place in Covington so that we can all physically visit the WWTP, Gasification Facility and the Hatchie River. Please let us know what dates would be convenient for you and other representatives of the Division. We will look forward to hearing from you. In the meantime, if you have any questions or comments, please call Harvey Wilson.

Sincerely,

A handwritten signature in blue ink, appearing to read "David Gordon", is written over a faint, circular official stamp.

Mayor David Gordon



DAVID W. GORDON  
Mayor



TINA C. DUNN  
Recorder-Treasurer

## City of Covington

POST OFFICE BOX 768  
200 West Washington Avenue, Covington, Tennessee 38019  
Telephone (901) 476-9613 Fax (901) 476-6699

September 23, 2014

Mr. Gary Davis  
Tennessee Department of Environment and Conservation  
Division of Water Resources  
312 Rosa L. Parks Avenue, 11<sup>th</sup> Floor  
Nashville, TN 37243-1102

TN DEPT OF ENVIRONMEN-  
AND CONSERVATION  
OCT 06 2014  
DIV OF WATER RESOURCES  
RECEIVED

**RE: DRAFT NPDES PERMIT NO. TN0020982  
COVINGTON STP  
COVINGTON, TIPTON COUNTY, TENNESSEE**

Dear Mr. Davis:

The City of Covington filed comments on the proposed NPDES permit in my correspondence of September 2, 2014. The City's staff has reviewed data already collected which we believe should be considered.

Temperature readings were taken at the influent to the chlorine contact chamber (ccc) and at the last manhole prior to discharge (Outfall H-1). The readings were taken every half hour beginning at 9:00 a.m. on days when the gasifier was running and days when it was not running.

Below is a summary of collected data showing how little increase in temperature the utilization of effluent for cooling water causes. All temperature readings are in degrees Celsius.

Date	Gasification	ccc	H-1	Increase
1-15-14	No	11.5	11.9	0.4
1-22-14	No	8.7	8.7	0.0
2-6-14	Yes	8.0	8.9	0.9
2-12-14	No	7.6	8.1	0.5
2-17-14	No	10.5	10.7	0.2
2-25-14	Yes	11.4	12.5	1.1



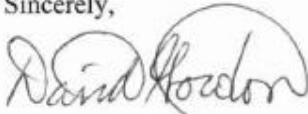
Mr. Gary Davis  
September 23, 2014  
Page 2

These readings are averages for the dates in question. This shows that there is a small increase in the interceptor sewer during normal operation. With the gasifier in operation the increase was 0.9 – 1.1 degrees.

According to TDEC, the 7Q10 flow in the Hatchie River is 204 million gallons per day (MGD) or almost 100 times the current flow from the waste water treatment plant. This would calculate to an expected change in temperature in the Hatchie River to be approximately 0.01 degrees. Based on these figures, the City does not believe an on-going monitoring program is justified and requests eliminating this requirement from the NPDES Permit.

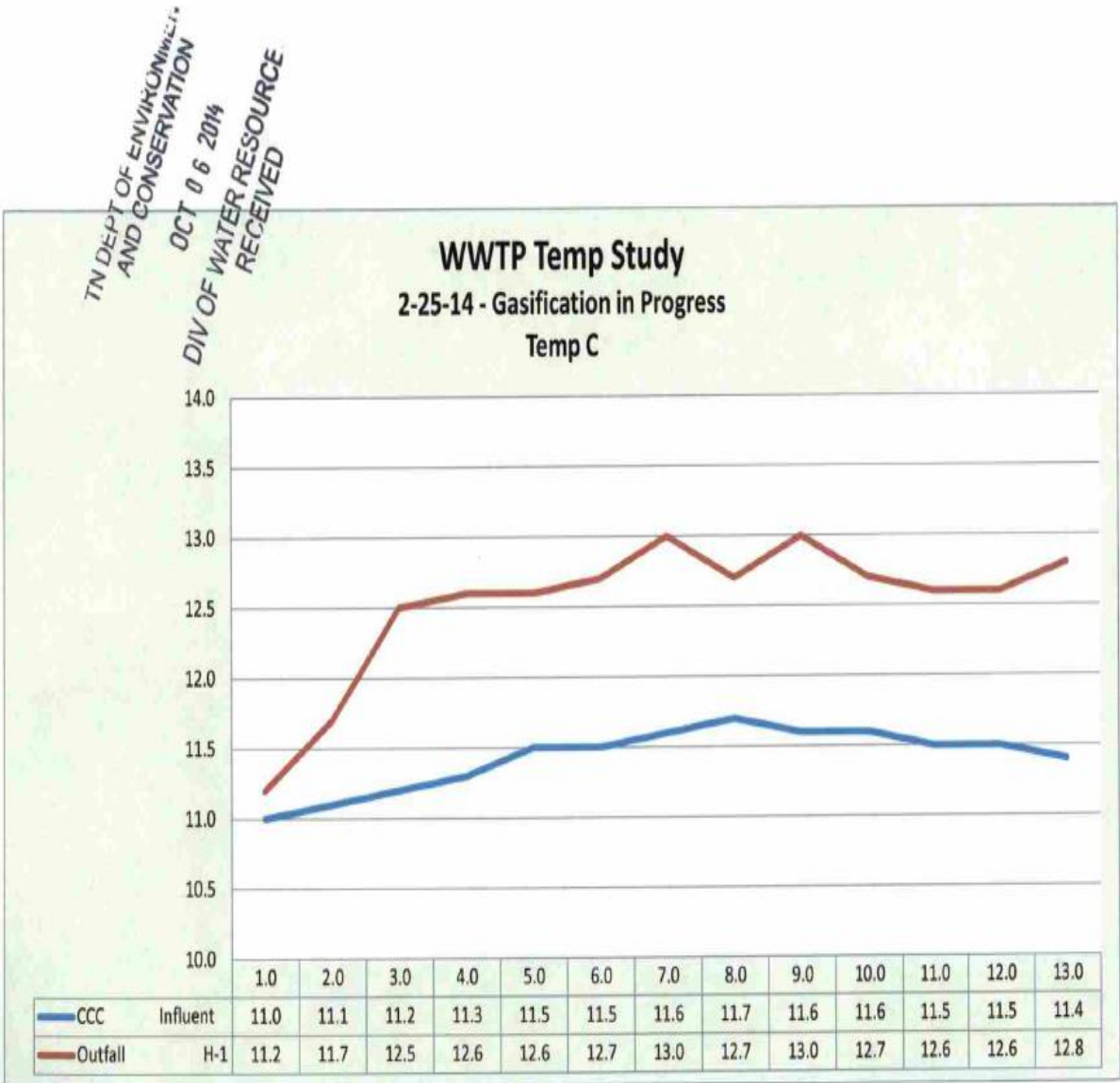
Attached are the readings and graphics prepared by the City's staff at the wastewater treatment plant. Your consideration of the City's request is appreciated.

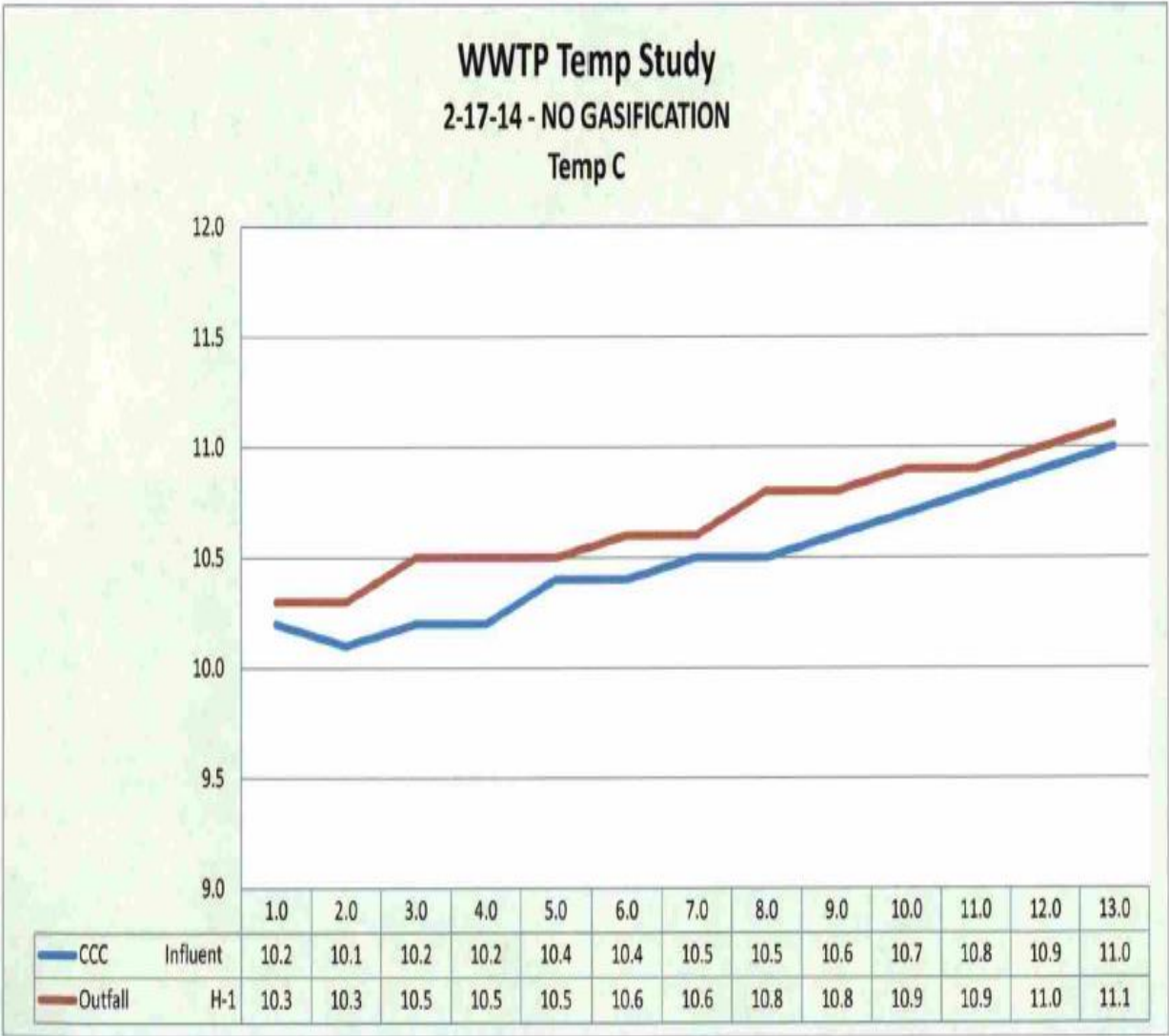
Sincerely,

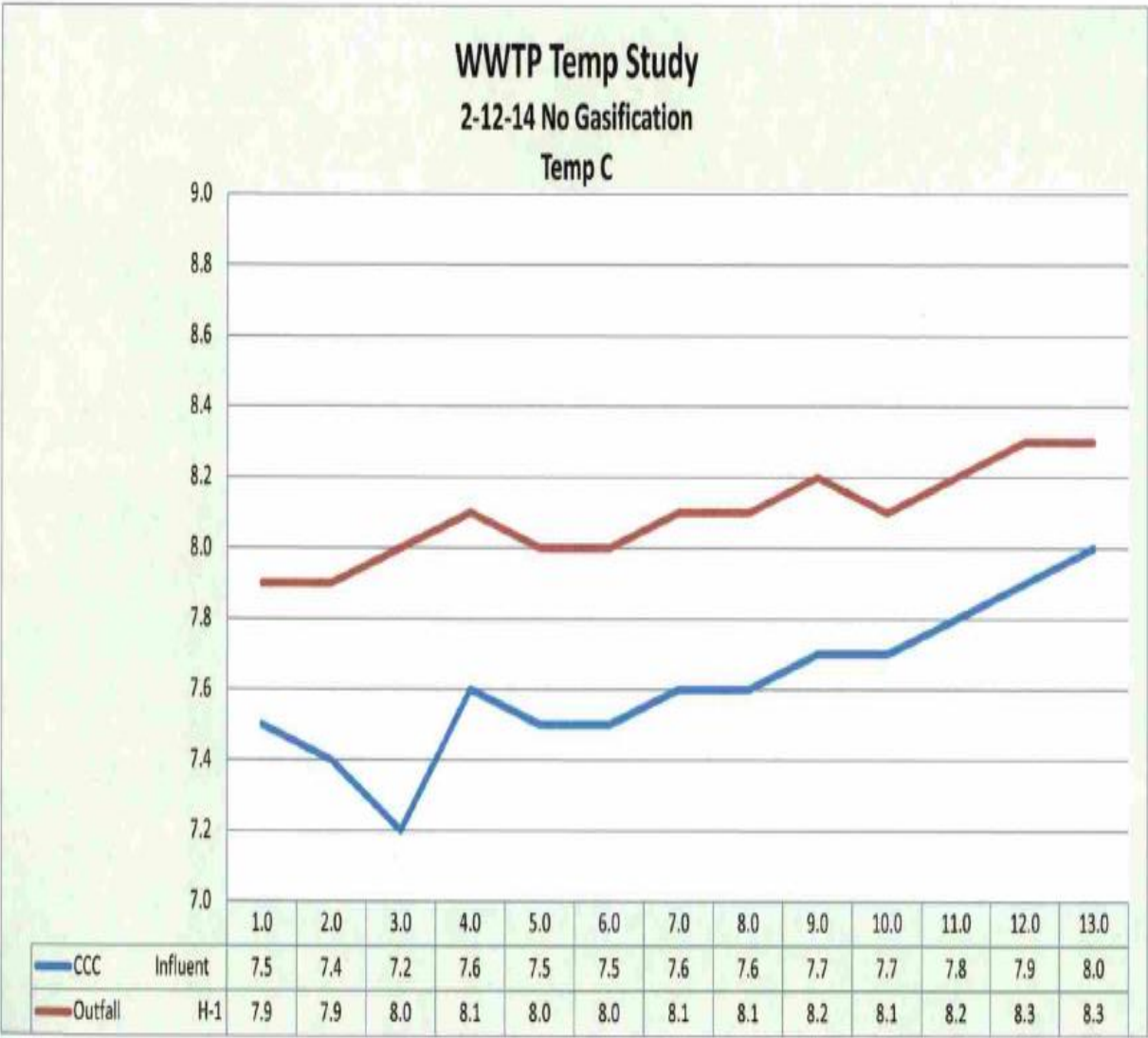
A handwritten signature in black ink, appearing to read "David Gordon", with a large, loopy flourish at the end.

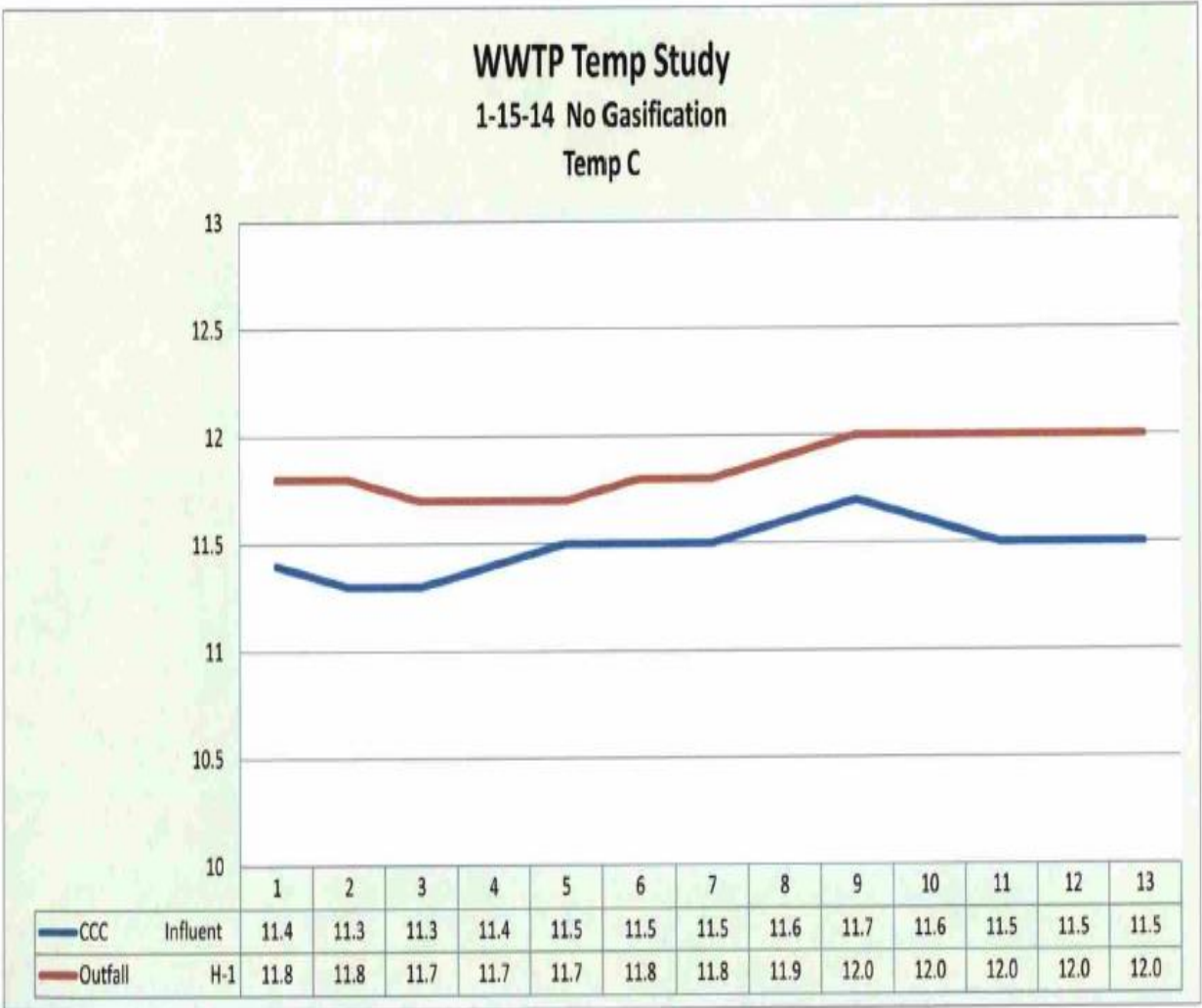
Mayor David Gordon

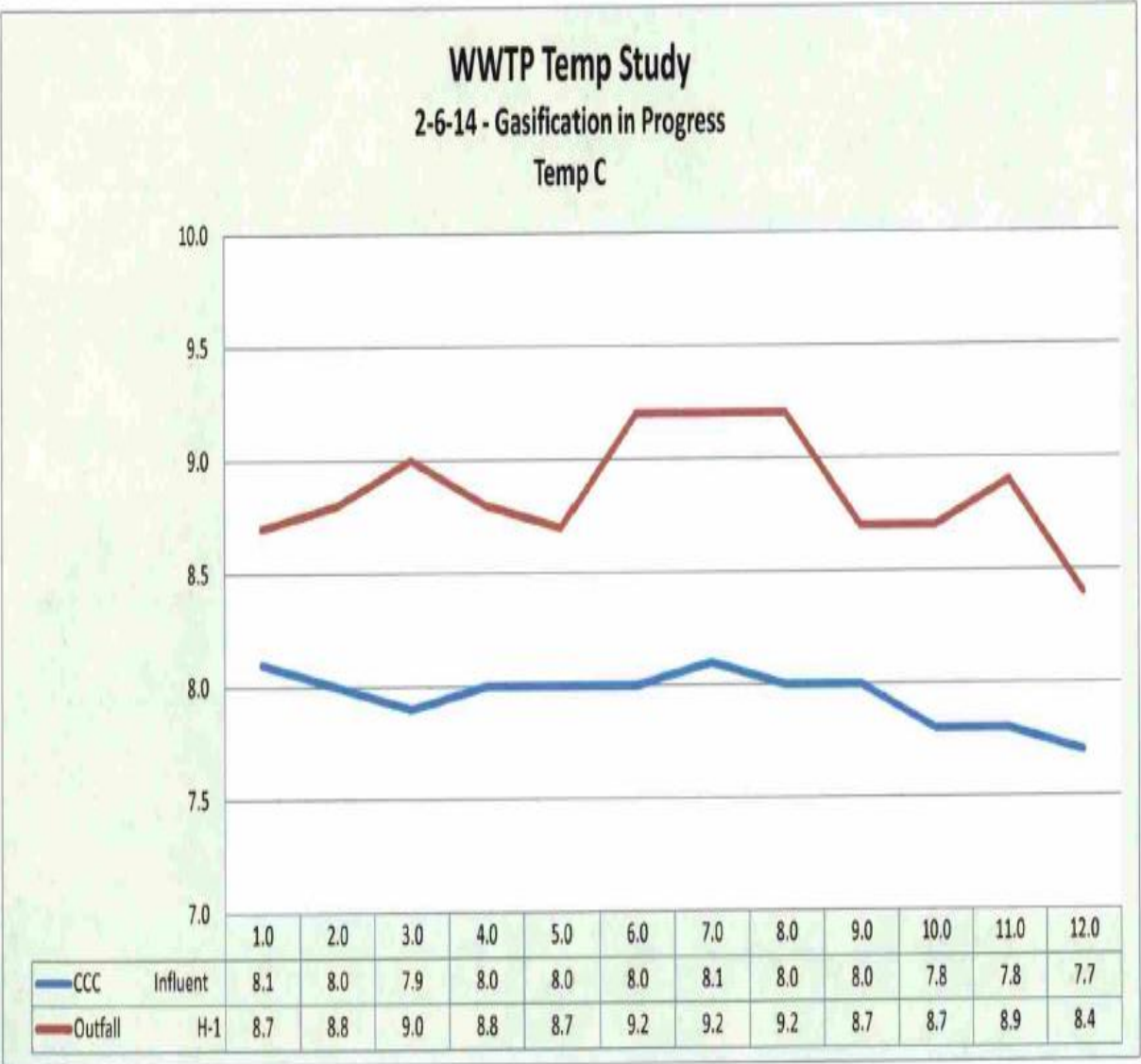
Cc: Harvey Wilson  
Chris Max  
James Cox











## APPENDIX AD-2 PERMITTEE'S WASTEWATER NITROGEN SPECIES RESULTS

### Ammonia Nitrogen Aquatic Toxicity Calculations

The State utilizes the EPA document, 1999 Update to Ambient Water Quality Criteria for Ammonia and assumed temperatures of 30°C and 20°C and stream pH of 8 to derive an allowable instream protection value. A mass balance with WWTP and stream flows and this allowable value determines the monthly average permit limit. Seasonal limits may also be allowed due to ambient temperature variations between the summer and winter seasons. When rare, threatened and/or endangered mussels are present in the receiving stream the division can use the following EPA ammonia aquatic toxicity CCC criteria as finalized in August 2013:

East TN- 25°C, 15°C

Middle TN- 27°C, 17°C

West TN- 30°C, 20°C

#### Summer

Temp (°C)= 30  
pH= 8.0

EPA August 2013  
CCC per p.49

CCC= 0.41 for 30 deg C  
pH = 8.0

CCC - Continuous Chronic Criterion Allowable instream NH<sub>3</sub>-N concentration [mg/l]

$$CCC = \frac{(\text{Critical Low Flow [MGD]} * \text{Background Ammonia Nitrogen [mg/L]} + (\text{Discharge Flow [MGD]} * \text{Effluent Concentration [mg/L]})}{(\text{Critical Low Flow [MGD]} + (\text{Discharge Flow [MGD]})}$$

where: 204 Critical Low Flow [MGD] (7Q10 value)  
0.2 Background Ammonia Nitrogen Concentration [mg/L]  
3.62 Outfall 001 Flow [MGD]

**Treated effluent NH<sub>3</sub>-N discharge concentrations and loadings for summer conditions follow:**

		Summer	
Concentration [mg/L]	for 30 deg C	12.2	Concentration [mg/L]
Amount [lb/day]	pH = 8	370	Amount [lb/day]



### Covington STP TN0020982 Nitrogen Species Results

Date	Influent			Effluent		
	TN (mg/L)	TKN (mg/L)	NO2+NO3 as N (mg/L)	TN (mg/L)	TKN (mg/L)	NO2+NO3 as N (mg/L)
5/22/2009	11.2	11.2	0.1	9.27	2	7.27
7/8/2009	20.9	20.9	0.1	3.57	1.88	1.69
11/17/2009	19.2	19	0.248	18.2	1.07	17.1
3/16/2010	23.1	23.1	0.1	13.1	4.96	8.18
6/18/2010	26.5	26.5	0.1	9.49	1.43	8.06
9/22/2010	28.5	28.5	0.1	21.5	3.32	18.2
12/14/2010	38.5	28.3	0.541	21.9	11.1 (a)	10.2
3/8/2011	18.6	18.2	0.384	10.6	2.79	7.83
6/22/2011	28.9	28.9	0.1	18.1	3.17	0.1
9/7/2011	50.7	50.7	0.1	37	4.68	0.1
12/2/2011	16.6	16.3	0.337	7.31	3.24	4.07
1/24/2012	14.1	14.1	0.1	6.28	1.58	4.7
6/13/2012	33.2	33.2	<0.100	16.3	3.2	13.1
9/21/2012	31.8	31.3	0.545	21.2	3.94	17.3
12/12/2012	44.3	43	1.32	12.8	1.96	10.8
3/13/2013	30.5	30.5	0.1	16.8	4.88	11.9
6/29/2013	7.54	7.54	0.1	12.1	1.27	10.8
9/24/2013	24.2	24.2	0.1	14.2	2.46	11.7
12/18/2013	55.7	55.5	0.192	3.8	2.85	0.954
3/7/2014	15.6	15.6	0.372	9.62	5.34	0.622
5/3/2014	121	121	0.474	15.3	2.88	12.4

All Data						
Average	31.5	30.8	0.276	14.2	3.33	8.4
Minimum	7.54	7.54	0.1	3.57	1.07	0.1
Maximum	121	121	1.32	37	11.1	18.2

Summer (shown in yellow)						
Average	34.9	34.9	0.2	16.2	2.7	9.2
Minimum	7.54	7.54	0.1	3.57	1.27	0.1
Maximum	121	121	0.545	37	4.68	18.2

(a) The value reported 21.4 mg/L was likely a typo and actually 11.1 mg/L.  
(Note: TN-(NO2+NO3 as N) = TKN; calculates as 21.9 mg/L - 10.2 mg/L = 11.7 mg/L)



## RATIONALE

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**Covington STP**  
**NPDES Permit No. TN0020982**  
**Permit Writer: Gary Davis**

### R1. FACILITY INFORMATION

**Covington STP**  
**Mr. Harvey Wilson - Water Quality Manager**  
**Covington, Tipton County, Tennessee**  
**(901) 475-4965**  
**Treatment Plant Average Design Flow: 3.62 MGD**  
**Percentage Industrial Flow: 11.5% (based on design flow)**  
**Treatment Description: Activated sludge plant with chlorination and dechlorination**  
**Certified Operator Grades: STP: 3; CS: 1; Date Rated: 7/11/2014**

### R2. RECEIVING STREAM INFORMATION

**unnamed tributary RM = 0.02 to Hatchie River RM = 35.2**  
**Watershed Group: Hatchie-Lower**  
**Hydrocode: 8010208**  
**Low Flow: 7Q10 = 204 MGD (Hatchie River)**  
**Low Flow Reference:**  
**USGS – Scientific Investigations Report 2009-5159**  
**Station #07030050**  
**Tier Designation: Exceptional Tennessee Waters**  
**Stream Classification Categories for Hatchie River:**

<b>Domestic Wtr Supply</b>	<b>Industrial</b>	<b>Fish &amp; Aquatic</b>	<b>Recreation</b>
<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>Livestock Wtr &amp; Wlife</b>	<b>Irrigation</b>	<b>Navigation</b>	
<b>X</b>	<b>X</b>		

**Water Quality Assessment: Fully Supporting Designated Usages**

### R3. CURRENT PERMIT STATUS

<b>Permit Type:</b>	<b>Municipal</b>
<b>Classification:</b>	<b>Major</b>
<b>Issuance Date:</b>	<b>31-MAR-09</b>
<b>Expiration Date:</b>	<b>31-MAR-14</b>
<b>Effective Date:</b>	<b>01-MAY-09</b>

**R4. NEW PERMIT RENEWAL CONSIDERATIONS AND COMPLIANCE SCHEDULE SUMMARY**

- a. The permittee now operates a recently installed on-site gasification facility. The gasification facility uses water from the WWTP's chlorine contact chamber for cooling and therefore increases the permittee's Outfall 001 discharge temperature, pursuant to its gasification facility's operation. The web includes extensive background information regarding Covington's newly installed gasification facility. Appendix R-1 presents a layout diagram for the permittee's WWTP and shows the gasification facility location.

The division recognizes that the permittee and gasification facility's manufacturer/consultants are developing comprehensive operational procedures for the recently installed system. The division has noted considerations in section R6.7 for the new gasification facility's operation, which may prove useful in tracking the chlorine contact chamber disinfection performance and retaining receiving stream temperature water quality compliance. The division expects that it will take some time to fully evaluate the new gasification facility's usage/performance, and to identify effective operational parameters to provide for its optimization. The new permit requires the permittee to submit an annual Gasification Facility report which addresses its operation/performance, temperature results, and as warranted corresponding instream temperature values. The division has developed the new permit to provide authorization for using the new gasification facility. However, the new permit's reopener clause (Part 1.5) has been supplemented to allow the division to make permitting adjustments/requirements based on the permittee's DMR results.

- b. The new permit (Part 1.2.1) includes clarifications regarding influent sampling and flow monitoring requirements. See section R6.1 for more information.
- c. Compliance Schedule Summary

Description of Report to be Submitted	Reference Section in Permit
Monthly Discharge Monitoring Reports	1.3.1
Monthly Operational Reports	1.3.4
Monthly Bypass and Overflow Summary Report	1.3.5.1
Industrial Waste Survey Report within 120 days of the effective permit date	3.2.a
Biomonitoring Report beginning within 90 days of the effective permit date	3.4
Annual Gasification Facility Report	3.5

- d. For comparison, this rationale contains a table depicting the current permit's limits and effluent monitoring requirements in Appendix R-2.

**R5. CURRENT PERMIT DISCHARGE MONITORING REPORT (DMR) AND INSPECTION RESULTS**

Appendix R-3 presents the permittee's DMR results for the period May 2009 through June 2014. Mostly the permittee did not have problems achieving its current discharge permit requirements. However, some permit exceedances were noted for the Outfall 001 *E. coli* and total residual chlorine maximum results.

During the current permit's term, personnel from the division's Memphis Environmental Field Office conducted Compliance Evaluation Inspections (CEIs) on July 16, 2013, February 8, 2011, and May 14, 2009. Based on the CEI results an "In Compliance" division determination was noted for each evaluation. A Pretreatment Compliance Inspection (PCI) was completed on July 24, 2012, and the division personnel noted that the permittee had five active Significant Industrial Users (SIUs), which included two Categorical Industrial Users (CIUs).

During the current permit's term the permittee received division authorization for its gasification facility's trials and testing on August 15, 2013. Appendix R-3 also includes the results from the gasification facility's trials and testing results. As demonstrated by the data presented in Appendix R-3, the permittee has had operational/equipment problems and was not able to achieve its continuous on-line/full capacity goal. The permittee has continued to operate its gasification facility on an intermittent basis and on November 19, 2014 requested that the division suspend the temperature monitoring until such time that the gasification facility is fully operational. As shown in Part 1.A, this new permit requires Outfall 001 temperature monitoring/reporting pursuant to its DMR submittals. This Rationale addresses temperature monitoring/reporting requirements in section R6.7.

**R6. NEW PERMIT RATIONALE (SEE APPENDIX R-5 FOR NEW PERMIT REQUIREMENTS)**

PARAMETERS	MONTHLY AVERAGE CONCENTRATION (MG/L)	MONTHLY AVERAGE AMOUNT (LB/DAY)	WEEKLY AVERAGE CONCENTRATIO N (MG/L)	WEEKLY AVERAGE AMOUNT (LB/DAY)	DAILY MAXIMUM CONCENTRATION (MG/L)	DAILY MINIMUM PERCENT REMOVAL	RATIONALE
BOD <sub>5</sub>	30	906	40	1,208	45	40	Refer to R6.1
Total Suspended Solids	30	906	40	1,208	45	40	Refer to R6.1
Dissolved Oxygen (mg/l)	1.0 (daily minimum) instantaneous	—	—	—	—	—	Refer to R6.1
Total Chlorine Residual (mg/l)	—	—	—	—	0.97 (daily maximum)	—	Refer to R6.3
Total Nitrogen	—	—	—	—	Report (qtr avg)	Report (qtr load)	Refer to R6.4
Total Phosphorus	—	—	—	—	Report (qtr avg)	Report (qtr load)	Refer to R6.4
<i>E. coli</i> (colonies/100ml)	126	—	—	—	487	—	Refer to R6.5
Settleable Solids (ml/l)	—	—	—	—	1.0 (daily maximum)	—	Refer to R6.3
pH (standard units)	6.0-9.0	—	—	—	—	—	Refer to R6.3
Flow (MGD):							
Influent	Report	—	—	—	Report	—	Refer to R6.1
Effluent	Report	—	—	—	Report	—	Refer to R6.1
Temperature (deg C)	Report (a)	—	—	—	Report (a)	—	Refer to R6.7
IC25	—	—	—	—	>1.7 % effluent	—	Refer to R6.6
Sanitary Sewer Overflows, Total Occurrences			Report			Refer to R6.10	
Dry Weather Overflows, Total Occurrences			Report			Refer to R6.10	
Bypass of Treatment, Total Occurrences			Report			Refer to R6.10	

(a) See Rationale R6.7 to determine temperature monitoring, reporting and control requirements.

Note: Weekly limitations on BOD<sub>5</sub> and TSS concentrations are given as required per 40 CFR 133.102(a)(2) or 133.102(a)(4)(2) & 133.102 (b)(2) respectively; daily BOD<sub>5</sub> and TSS limitations are authorized by T.C.A. 1200-4-5-.09; monthly and weekly mass loads are limited per 40 CFR 122.45(f) and based on the design flow as per 40 CFR 122.45(b); monthly average percent removal rates for BOD<sub>5</sub> and TSS are required per 40 CFR 133.102(a)(3) or 133.102(a)(4)(iii) and 133.102 (b)(3) respectively. A minimum 40% daily removal rate is required as equivalent to a daily mass load limitation.

**R6.1. FLOW, BOD<sub>5</sub>, DISSOLVED OXYGEN, TSS, AND PERCENT REMOVAL REQUIREMENTS**

- a. Influent and effluent flow monitoring is required to allow mass loadings to be calculated. In Part 1.2.1, the new permit includes clarifications regarding influent sampling and flow monitoring. As such, the permittee's WWTP recycle streams must be not be included in the permittee's influent (raw wastewater) samples or flow monitoring. The division requires that representative influent samples be collected. Therefore for the influent, flow-weighted composite sampling is required, with appropriate grab sampling as required for some parameters. If the permittee has specific questions, e.g., for multiple influent lines the permittee should contact the division for more information regarding appropriate sampling/monitoring.
- b. Biochemical oxygen demand, or BOD, is a measure of the oxygen used when biological processes break down organic pollutants in wastewater. The amount of oxygen used is more specifically referred to as the five-day biochemical oxygen demand, or BOD<sub>5</sub>. This parameter is used in the wastewater industry to measure both the strength of wastewater and the performance of wastewater treatment processes. Limits on the oxygen demand remaining in the treated wastewater is often necessary to prevent pollutants in the wastewater from driving oxygen in the receiving stream down below the levels necessary to support fish and aquatic life. Additionally, the breakdown of ammonia into other forms of nitrogen also requires oxygen and therefore exerts an oxygen demand on receiving wastewaters. The approach used for the current permit is being retained for the new permit.

The monthly average BOD<sub>5</sub> and TSS limit of 30 mg/l (technology-based effluent limits for conventional secondary treatment plants (per Rule 1200-4-5-.09)) is being retained from the current permit.

The dissolved oxygen effluent limitation of 1.0 mg/l is a practical limit achievable by the facility rather than a water-quality based limit necessary to protect fish and aquatic life. Given the large dilution afforded by the Hatchie River receiving stream, the division considers this discharge limit to be protective for its fish and aquatic life usage.

- c. The treatment facility is required to remove 85% of the BOD<sub>5</sub> and TSS that enter the facility on a monthly basis. This is part of the minimum requirement for all municipal treatment facilities contained in Code of Federal Regulations 40 Part 133.102. The reasons stated by the U.S.E.P.A. for these requirements are to achieve these two basic objectives:
  - (1) To encourage municipalities to correct excessive inflow and infiltration (I/I) problems in their sanitary sewer systems, and
  - (2) To help prevent intentional dilution of the influent wastewater as a means of meeting permit limits.

The treatment facility is required to remove 40% of the BOD<sub>5</sub> and TSS that enter the facility on a daily basis. This percent removal will be calculated three times per week and recorded on the Monthly Operation Report. The number of excursions (days

when BOD<sub>5</sub> and/or TSS removal is less than 40%) will be reported on the Discharge Monitoring Report.

## R6.2. NH<sub>3</sub>-N TOXICITY CONSIDERATIONS

To assess potential NH<sub>3</sub>-N toxicity impacts, the state utilizes the EPA document, 1999 Update to Ambient Water Quality Criteria for Ammonia, pursuant to 1200-4-3-.0-3(3)(j), and assumed stream temperatures of 30°C and 20°C and pH of 7.5 s.u. to derive an allowable instream protection value protective of chronic exposure to a continuous discharge. A mass balance equation with sewage treatment facility and stream flows and this allowable value determines the monthly average permit limit. The criteria document states that a 30Q5 flow value is protective in deriving allowable values. Where the division has 30Q5 flow values, the division may use them. Otherwise, the division utilizes the available 7Q10 or 1Q10 values that are generally more conservative. The ammonia nitrogen aquatic toxicity calculations presented in Appendix R-4 demonstrate that a specific discharge limit for NH<sub>3</sub>-N is not needed.

## R6.3. TOTAL RESIDUAL CHLORINE, pH, AND SETTLEABLE SOLIDS

Chlorination is used to disinfect the wastewater in order to protect the receiving stream from pathogens. Because chlorine can be toxic to aquatic life, the division limits residual chlorine. The residual chlorine discharge limit is derived using the mass balance formula and the EPA instream protection value of 0.019 mg/l for fish and aquatic life. Applying this formula yields the following calculation:

$$\frac{0.019 (Q_d + Q_s)}{Q_d} = \text{Limit (mg/l)} = \frac{0.019(3.62 + 204)}{3.62} = 1.09 \text{ mg/l}$$

where:

0.019	=	instream protection value (acute)
3.62	=	Q <sub>d</sub> , design flow of STP (MGD)
204	=	Q <sub>s</sub> , 7Q10 flow of receiving stream (MGD)

The total residual chlorine limit (0.97 mg/L) is being retained from the current permit due to the anti-backsliding provision of 40 CFR 122.44(l) that requires a reissued permit to be as stringent as the prior permit.

The Outfall 001 must remain within the range 6.0 to 9.0 s.u. based on secondary treatment standards for municipal wastewater. This pH limitation is being retained from the current permit.

The settleable solids requirement and limit (1.0 ml/l) was retained from the current permit. Settleable solids results are useful to determine the aeration basin mixed liquor suspended solids settling/thickening characteristics and clarifier performance.

#### **R6.4. TOTAL NITROGEN AND TOTAL PHOSPHORUS LIMITATIONS**

For major NPDES permits (design flows  $\geq 1.0$  MGD) EPA recommends continued monitoring for total nitrogen (TN) and total phosphorus (TP) in order to have current nutrient data maintained in its Integrated Compliance Information System (ICIS) database to accurately forecast nutrient loading to the Mississippi River. This ICIS data is being used by the Mississippi Hypoxia Task Force which consists of the EPA and States along the Mississippi River. Tennessee is one of three states in Region 4 which has rivers that ultimately drain to the Mississippi River. As such, the TN and TP monitoring requirements from the current permit are being retained for the new permit.

#### **R6.5. *E. COLI* REQUIREMENTS**

To protect the receiving stream from pathogenic microorganisms, the division requires the permittee to continue disinfecting its treated wastewater. Fecal coliform and *E. coli* are indicator organisms used as a measure the receiving stream's bacteriological health and disinfection system's performance.

The *E. coli* limits from the current permit are being retained for the new permit (126 cfu/100 mL as a geometric mean for the monthly average, with a daily maximum limit of 487 cfu/100 mL (since the receiving stream is an exceptional Tennessee waters).

The gasification facility's intake and return cooling water flow from/to the chlorine contact chamber may warrant additional permittee focus for consistent disinfection system control and performance.

#### **R6.6. CHRONIC BIOMONITORING**

The division evaluates all dischargers for reasonable potential to exceed the narrative water quality criterion, "no toxics in toxic amounts". The division has determined that for municipal facilities with stream dilutions of less than 500 to 1, any of the following conditions may demonstrate reasonable potential to exceed this criterion.

- a. Toxicity is suspected or demonstrated.

- b. A pretreatment program is required.
- c. The design capacity of the facility is greater than 1.0 MGD.

Because the design capacity of the facility exceeds 1.0 MGD and a pretreatment program is required, the facility is considered to have the reasonable potential to violate the narrative water quality criterion, "no toxics in toxic amounts". The following calculation is the required dilution at which chronic toxicity testing must meet permit requirements.

$$IC_{25} \% = \frac{\text{Design Flow}}{\text{Low Flow} + \text{Design Flow}} * 100 \geq \frac{3.62}{204 + 3.62} * 100 > 1.7\%$$

where:

204 = Low Flow - 7Q10 (MGD)  
 3.62 = Design Flow Capacity (MGD)  
 IC<sub>25</sub> = Concentration causing 25% reduction in survival, reproduction and growth of test organisms

#### R6.7. TEMPERATURE CONSIDERATIONS

Since elevated and/or rapid changes in ambient receiving stream temperature may adversely impact its Fish & Aquatic Life designated usage [per Rule 0400-40-03-03(3)(e)], the permittee must operate its newly installed gasification facility using proper discharge temperature water quality considerations. As such, the permittee's discharge must not cause the temperature change in receiving stream(s) to exceed 3°C relative to an upstream control point. Also, this discharge must not cause receiving stream's temperature to exceed 30.5°C (except as a result of natural causes), and this discharge must not cause the maximum rate of temperature change in receiving streams to exceed 2°C per hour (except as a result of natural causes). The new permit includes continuous Outfall 001 discharge temperature monitoring requirements, with the temperature water quality criteria being applicable instream.

The permittee must report its discharge temperature results in terms of monthly average and daily maximum values on its submitted Discharge Monitoring Report (DMRs). It is important to note that a reported Outfall 001 discharge temperature that exceeds the receiving stream water quality temperature criteria does not translate directly to a permit violation. This is because the temperature standard is applicable to the instream temperature, not the discharge temperature. The permittee is required to make instream temperature evaluations, including monitoring if the above temperature water quality criteria appear to be exceeded due to the Outfall 001 discharge temperature results. At this time, the division does not know under what conditions the permittee would be required to reduce or stop operating its gasification facility due to instream temperature water quality standards compliance. As noted in the new permit (Part 3.5), annually the permittee must submit a Gasification Report to the division, which provides the operational/performance results, Outfall 001 temperature values, and resulting instream temperature impacts with respect to the division's water quality standards.



Therefore, the new permit includes reopener clause (Part I.5) provisions for making permit modifications, if warranted based on the permittee's DMR results.

#### **R6.8. METALS AND TOXICS**

Pass-through limitations for heavy metals and other toxic substances have been recalculated as part of the permit reissuance process and/or due to changes in industrial waste contribution to the POTW. The permittee is required to implement/maintain its pretreatment program. More frequent monitoring will be required in the permit if (a) the reported concentrations approach or exceed calculated allowable values, (b) significant amounts of particular pollutants are present which may impact the treatment process sludge character or the receiving stream, or (c) minimum information is lacking to accurately calculate water quality protection values, in which case additional stream monitoring may also be required.

The permittee's semiannual report data does not indicate that the potential exists for the water quality criteria for any parameter to be exceeded. Appendix R-4 lists the metal and toxic parameters calculations and the procedure used to derive the results.

#### **R6.9. VOLATILE ORGANIC, ACID-EXTRACTABLE, AND BASE-NEUTRAL COMPOUNDS**

The division evaluated effluent concentrations of volatile organic, acid-extractable, and base-neutral compounds and antimony, arsenic, beryllium, selenium and thallium for potential to violate water quality criteria using the following mass balance equation:

$$C_m = \frac{Q_s C_s + Q_w C_w}{Q_s + Q_w}$$

where:

$C_m$  = resulting in-stream concentration after mixing  
 $C_w$  = concentration of pollutant in wastewater  
 $C_s$  = stream background concentration  
 $Q_w$  = wastewater flow, (STP design flow)  
 $Q_s$  = stream low flow

***to protect water quality:***

$$C_w \leq C_a$$

where:

$C_a$  = STP effluent concentration allowable  
 $= \frac{(S_A) [C_m (Q_s + Q_w) - Q_s C_s]}{Q_w}$

and ( $S_A$ ) = the percent "Stream Allocation".

The reasonable potential evaluation uses the following assumptions and procedures:

- a. Stream background concentrations,  $C_s$ , for all volatile organic, acid-extractable, and base-neutral compounds equal zero unless actual stream data exists to show otherwise. Use of the effluent concentrations of such pollutants contributed by upstream dischargers as background is not justifiable due to the volatility and reactivity of these pollutants.
- b. The stream allocation,  $S_A$ , is 50% and is used as a factor of safety.
- c. A mass balance uses the STP design flow, the receiving stream critical low flow (7Q10), the state water quality numeric criteria, and the stream allocation safety factor to derive the allowable effluent concentrations.
- d. When pollutants have potential to violate standards because the concentrations are below the scan detection levels but could be above the allowable water quality based effluent concentrations, the pollutants are handled one of three (3) ways:
  - i. Additional testing of detected and non-detected pollutants is required if contributing industrial processes are likely to contain them and the effluent scans have not met the minimum required detection levels (RDL) in the state water quality standards or approximated the method detection limits (MDL) of the approved test methods for the pollutants in 40 CFR Part 136.
  - ii. If the required RDL has been used and resulted in non-detection, or if an MDL has been used with non-detection and the contributing industrial processes do not reasonably contain that pollutant, the division drops the pollutant from further consideration.
  - iii. Pollutants detected at levels high enough to violate standards are limited in the permit to the allowable concentration,  $C_w$ , based on STP design flow.

Reasonable potential calculations shown in Appendix R-4 were completed using a standardized spreadsheet, titled "WQ Based Effluent Calculations - Other Compounds". From this evaluation the division does not consider that discharge limitations are warranted in the new permit for volatile organic, acid extractable, base neutral compounds, and antimony, arsenic, beryllium, selenium, and thallium do not exhibit the potential to violate water quality criteria.

#### **R6.10. OVERFLOW AND BYPASS REPORTING**

For the purposes of demonstrating proper operation of the collection, transmission, and treatment system, the permit defines overflow as any release of sewage other than through permitted outfalls. This definition includes, but is not necessarily limited to, sanitary sewer overflows and dry weather overflows as defined. For example, a collection system blockage or hydraulic overload that causes backup and release of sewage into a building during a wet weather event may not clearly fit either the definition of a sanitary sewer overflow or a dry weather overflow. Still, any unpermitted release potentially warrants permittee mitigation of human health and/or

water quality impacts via direct or indirect contact and demonstrates a hydraulic problem in the system that warrants permittee consideration as part of proper operation and maintenance of the system.

However, for the more typical, unpermitted, releases into the environment, this permit intends interchangeable use of the terms, “overflow” and “sanitary sewer overflow” for compliance reporting purposes.

## **R7.0 OTHER PERMIT REQUIREMENTS AND CONDITIONS**

### **R7.1. CERTIFIED WASTEWATER TREATMENT OPERATOR**

The waste treatment facilities shall be operated under the supervision of a Grade 3 certified wastewater treatment operator in accordance with the Water Environmental Health Act of 1984. Operator grades are under jurisdiction of the Water and Wastewater Operators Certification Board. This NPDES permit is under jurisdiction of the Tennessee Board of Water Quality, Oil and Gas. Operator grades are rated and recommended by the Division of Water Resources pursuant to Rule 0400-49-01 (formerly 1200-05-03) and are included in this fact sheet for reference. The grades are intentionally not specified in the permit so that the operation certification board can authorize changes in grade without conflicting with this permit.

### **R7.2. COLLECTION SYSTEM CERTIFIED OPERATOR**

The collection system shall be operated under the supervision of a Grade 1 certified collection system operator in accordance with the Water Environmental Health Act of 1984.

### **R7.3. PRETREATMENT PROGRAM**

The Covington STP has an approved pretreatment program. An updated Industrial Waste Survey must be completed within 120 days of the effective date of the permit, unless such a survey has been submitted within 3 years of the effective date.

At least once each reporting period, all permittees with approved pretreatment programs are required to analyze the STP influent and effluent for the following pollutant parameters: chromium (trivalent and hexavalent and total if drinking water use applies), copper, lead, nickel, zinc, silver, cadmium, mercury, total phenols, and cyanide. These pollutants were selected because, historically, they are the ones that tend to be predominant in industrial wastewaters. Other pollutants may be added to the list, as required.

During preparation of this permit, data from ten previous semiannual reports were analyzed. If any particular value of a pollutant equals or exceeds 85% of the pass-through limit the pollutant was added to the list of those that are required to be sampled. Based on our review of the semiannual reports and other documents no additional monitoring is warranted.

### **R7.4. BIOSOLIDS/SLUDGE MANAGEMENT**

The Clean Water Act (CWA) requires that any NPDES permit issued to a publicly owned treatment works or any other treatment works treating domestic sewage shall comply with 40 CFR Part 503, the federal regulation governing the use and disposal of sewage sludge. It is important to note that “biosolids” are sewage sludge that has been treated to a level so that they can be land applied.

The language in subpart 3.3 of the permit, relative to biosolids management, a CWA requirement, allows the “permitting authority” under 40 CFR Part 503.9(p) to be able to enforce the provisions of Part 503. The “permitting authority” relative to Part 503 is either a state that has been delegated biosolids management authority or the applicable EPA Region; in the case of Tennessee it is EPA-Region 4.

Tennessee regulates the land application of biosolids under state rules, Chapter 0400-40-15. The state rules became effective on June 30, 2013. Under these state rules, all facilities that land-apply biosolids must obtain a biosolids permit from the division. The land application of biosolids under state rules will be regulated through either a general permit or by an individual permit. It is anticipated that the permitting of biosolids land application will begin near the beginning of calendar year 2014. Questions about the division’s biosolids regulations and permitting program should be directed to the division’s Biosolids Coordinator at:

State of Tennessee  
Department of Environment and Conservation  
Division of Water Resources  
William R. Snodgrass - Tennessee Tower  
312 Rosa L. Parks Avenue, 11th Floor  
Nashville, Tennessee 37243-1102  
(615) 532-0625

#### **R7.5. PERMIT TERM**

This permit is being reissued to expire in 2019 in order to coordinate its reissuance with other permits located within the Hatchie-Lower Watershed.

#### **R8.0 ANTIDegradation Statement/Water Quality Status**

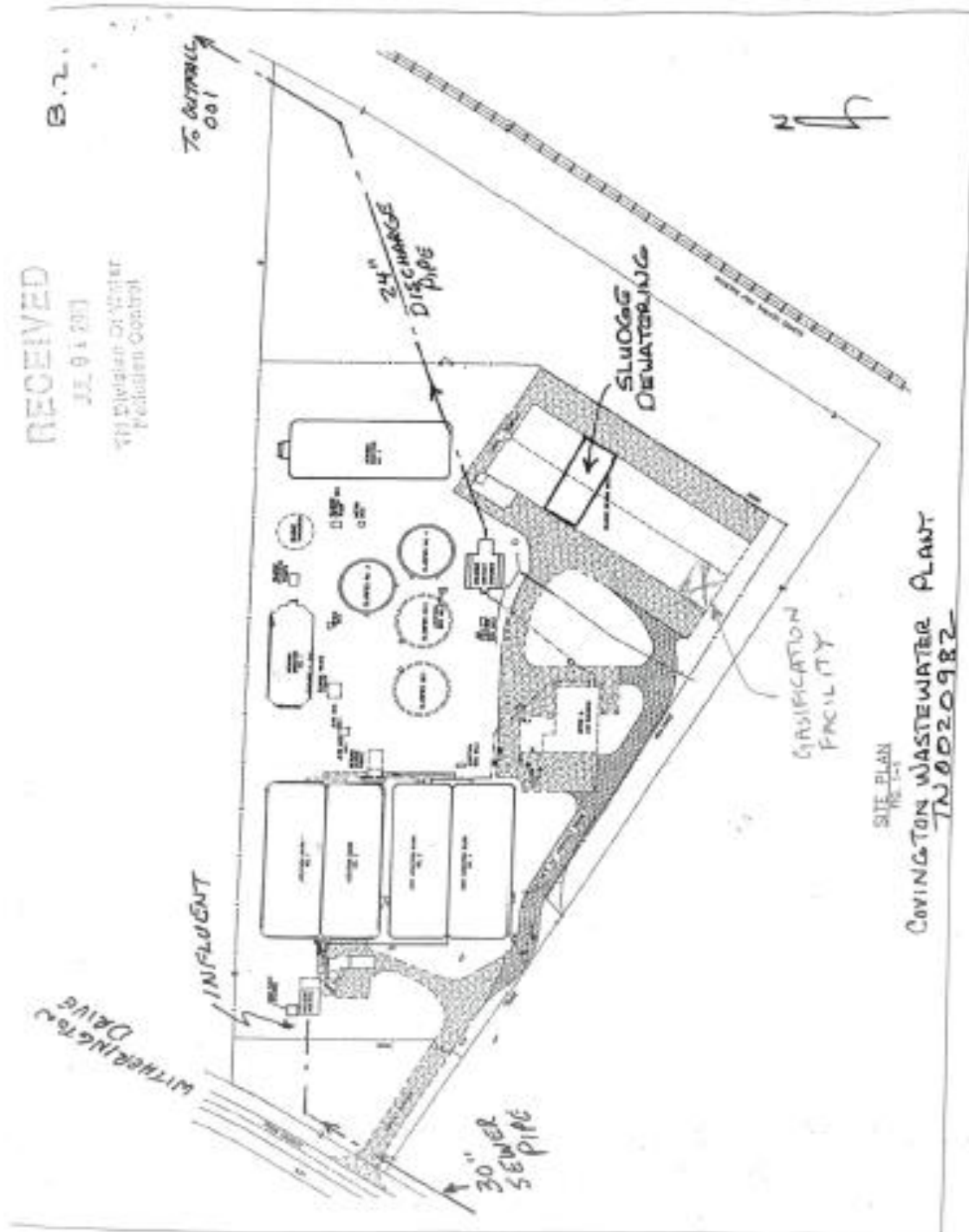
Tennessee’s Antidegradation Statement is found in the Rules of the Tennessee Department of Environment and Conservation, Chapter 0400-40-03-.06. It is the purpose of Tennessee’s standards to fully protect existing uses of all surface waters as established under the Act.

Receiving streams determinations for this permit action are associated with the waterbody segment identified by the division as segment ID#s TN08010208001\_0999 (for the unnamed tributary to Hatchie River) and TN08010208001\_2000 (Hatchie River). The division has made a determination that

the receiving waters associated with the Outfall 001 discharge are Exceptional Tennessee Waters, and no permanent water quality degradation will be allowed unless the applicant demonstrates to the division that the degradation is necessary for economic or social development, and will not interfere with or become injurious to any existing uses. The specific requirements for this demonstration are described in the Rules of the Tennessee Department of Environment and Conservation, Chapter 0400-40-03-.06(4). The permittee provided its antidegradation statement information pursuant to completing the permit renewal application, which is available in the division's permit file and website. The receiving streams have been classified as Exceptional Tennessee Waters due to being deemed a State Scenic River and the presence of the state threatened Blue Sucker, and the federally endangered Hatchie Burrowing Crayfish.

The unnamed tributary has not been assessed by the division whereas the Hatchie River (as noted in the section R1), is fully supporting its designated usages. The division has maintained, and shall continue to assess, the receiving streams water quality to assure that the water quality is adequate to protect the existing uses of the stream fully, and to assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control. No EPA-approved TMDLs have been developed for the receiving streams.

**APPENDIX R-1**  
**PERMITTEE'S WWTP (WITH NEW GASIFICATION FACILITY NOTED)**



## APPENDIX R-2 CURRENT PERMIT LIMITS

PARAMETERS	MONTHLY AVERAGE CONCENTRATION (MG/L)	MONTHLY AVERAGE AMOUNT (LB/DAY)	WEEKLY AVERAGE CONCENTRATION (MG/L)	WEEKLY AVERAGE AMOUNT (LB/DAY)	DAILY MAXIMUM CONCENTRATION (MG/L)	DAILY MINIMUM PERCENT REMOVAL	MEASUREMENT FREQUENCY
BOD <sub>5</sub> (Influent & Effluent)	30	906	40	1,208	45	40	3/week
Total Suspended Solids (Influent & Effluent)	30	906	40	1,208	45	40	3/week
Dissolved Oxygen (mg/l)	1.0 (daily minimum instantaneous)	—	—	—	—	—	5/week
Total Chlorine Residual (mg/l)	—	—	—	—	0.97 (instantaneous maximum)	—	5/week
Total Nitrogen (Influent & Effluent)	—	—	—	—	Report (qtr avg)	Report (qtr load)	1/quarter
Total Phosphorus (Influent & Effluent)	—	—	—	—	Report (qtr avg)	Report (qtr load)	1/quarter
<i>E. coli</i> (colonies/100ml)	126	—	—	—	487	—	3/week
Settleable Solids (ml/l)	—	—	—	—	1.0 (daily maximum)	—	5/week
pH (standard units)	6.0-9.0	—	—	—	—	—	5/week
Silver, Total	—	—	—	—	0.00424	—	1/month
Flow (MGD):							
Influent	Report	—	—	—	Report	—	7/week
Effluent	Report	—	—	—	Report	—	7/week
IC <sub>25</sub>	—	—	—	—	>1.8 % effluent	—	1/year
Sanitary Sewer Overflows, Total Occurrences	Report						continuous
Dry Weather Overflows, Total Occurrences	Report						continuous
Bypass of Treatment, Total Occurrences	Report						continuous

## APPENDIX R-3 DISCHARGE MONITORING REPORT SUMMARY

Covington STP DMR Results TN0020982 (page 1/2)

Month Ending Date	Influent Flow		Effluent Flow		Inf. BOD5		Eff. BOD5				BOD5 Removal		Inf. TSS		Eff. TSS				TSS Removal		D.O.		pH		Settleable Solids (mL/L)	E. coli		Ag D. Max. (mg/L)	TRC D. Max. (mg/L)	Overflow		Bypass (count)	
	M. Avg. (mgd)	D. Max. (mgd)	M. Avg. (mgd)	D. Max. (mgd)	M. Avg. (mg/L)	D. Max. (mg/L)	M. Avg. (mg/L)	W. Avg. (mg/L)	D. Max. (mg/L)	M. Avg. (lb/day)	W. Avg. (lb/day)	M. Avg. (%)	D. Max. (%)	M. Avg. (mg/L)	D. Max. (mg/L)	M. Avg. (mg/L)	W. Avg. (mg/L)	D. Max. (mg/L)	M. Avg. (lb/day)	W. Avg. (lb/day)	M. Avg. (%)	D. Max. (%)	D. Min. (mg/L)	D. Min. (s.u.)		D. Max. (s.u.)	M. Avg. (cfu/100 mL)			D. Max. (cfu/100 mL)	D. Max. (mg/L)		D. Max. (mg/L)
05/31/2009	2.563	5.416	2.472	5.295	164	240	2.92	3.08	3.53	60	68	98	97	152	219	4.31	7.11	8	83	111	97	95	6.1	7	7.8	0.1	2	2	0.0001	2.5	0	0	0
06/30/2009	2.255	4.323	2.159	4.213	182	284	2.87	2.89	2.95	52	81	98	97	183	296	4.24	6.55	8.33	82	176	98	94	5.7	7.1	7.5	0.2	3	14	0.0001	0.8	0	0	0
07/31/2009	1.996	4.634	1.904	4.564	191	279	3.1	3.59	4.86	61	91.3	98	94	206	308	6.28	8.3	11.3	126	206	97	95	5.9	6.6	7.4	0.2	7	70	0.000109	0.2	0	0	0
08/31/2009	1.849	3.709	1.757	3.627	210	339	2.86	2.86	2.86	44	50	99	98	224	331	3.82	5.33	7	56	73	98	97	5.1	6.7	6.9	0.1	3	24	0.001	0.2	0	0	0
09/30/2009	1.706	3.877	1.621	3.657	232	337	3.29	4.06	5.8	44	63	98	95	283	843	6.61	7.11	10.03	89	108	97	92	6	6.5	6.9	0.1	5	148	0.000109	0.2	0	0	0
10/31/2009	2.499	5.799	2.411	5.629	187	383	3.22	3.67	4.3	69	110	98	95	214	555	6.98	10.12	10.7	161	325	96	92	6.4	6.6	7.1	0.1	3	32	0.0001	0.4	0	0	0
11/30/2009	1.948	2.738	1.899	2.668	191	284	3.32	4.87	7.9	56	97	98	97	205	299	4.25	7.33	9	74	149	97	93	7.3	6.9	7.3	0.1	2	4	0.0001	0.5	0	0	0
12/31/2009	2.448	4.968	2.358	4.828	207	494	3.74	4.46	5.66	74	120	98	95	223	745	6.67	7.78	9	128	193	96	94	7.5	6.8	7.3	0.1	3	34	0.0001	0.9	0	0	0
01/31/2010	2.494	4.766	2.414	4.642	257	529	3.86	4.77	7.38	73	84	98	97	216	589	5.53	6.45	7	105	139	97	95	8.2	6.9	7.3	0.1	3	22	0.000146	0.2	0	0	0
02/28/2010	3.41	5.765	3.331	5.887	159	285	12.91	22.65	53.5	432	865	89	43	169	289	16.06	28.3	36.5	496	867	89	72	7.3	6.8	7.5	0.6	10	8,640	0.000182	4.8	0	0	0
03/31/2010	2.798	4.347	2.712	4.277	223	327	3.67	4.25	5.1	85	113	98	97	274	556	6.07	8.01	13.7	137	168	97	94	7.3	6.2	7.3	0.1	2	6	0.0001	0.2	0	0	0
04/30/2010	2.395	3.54	2.291	3.5	217	281	3.39	3.71	4.12	63	81	98	96	170	218	5.45	6.9	9	101	130	97	94	7.1	6.9	7.3	0.1	2	2	0.0001	0.2	0	0	0
05/31/2010	2.805	9.1	2.709	9	251	417	3.2	4.19	6.85	70	108	99	97	203	502	4.77	6.33	9.33	106	171	97	93	5.1	6.3	7.3	0.1	3	6	0.0001	0.5	0	0	0
06/30/2010	1.939	3.803	1.866	3.633	2.55	372	2.88	2.96	3.17	48	56	99	98	264	590	5.03	5.56	10.33	86	117	98	96	5	6.7	7.2	0.1	4	26	0.0001	0.2	0	0	0
07/31/2010	1.585	3.624	1.51	3.554	242	524	2.86	2.86	2.86	44	70	99	97	332	1043	3.13	4	7.33	49	80	99	97	4.6	6.3	7.2	0.1	5	146	0.0001	0.5	0	0	0
08/31/2010	1.423	1.693	1.372	1.935	320	431	3.28	3.92	6.05	39	46	99	98	291	450	12.8	6.55	13.7	78	150	98	93	4.7	6.1	7.1	0.1	4	14.8	0.0001	0.11	0	0	0
09/30/2010	1.266	1.594	1.193	1.519	303	446	2.86	2.86	2.86	29	32	99	98	257	384	3.94	5	8	40	51	98	97	5.7	6.3	6.9	0.1	5	312	0.0001	0.9	0	0	0
10/31/2010	1.278	1.74	1.19	1.67	319	390	3.18	4.14	5.32	33	43	99	98	241	379	5.58	7.89	10	57	82	97	94	6.2	6.2	6.9	0.1	5	1,080	0.0001	0.18	0	0	0
11/30/2010	1.485	3.215	1.409	3.145	285	488	4.68	6.55	8.22	69	114	98	96	309	540	7.59	10.5	17	115	189	97	95	7.1	6.1	6.9	0.1	3	25	0.000104	0.16	0	0	0
12/31/2010	1.352	2.31	1.264	2.28	2.87	553	3.58	4.33	5.16	38	81	99	97	191	459	4.82	7.43	13.3	50	157	97	95	8	6.3	7	0.1	2	6	0.0001	0.17	0	0	0
01/31/2011	1.471	2.521	1.39	2.491	265	415	3.86	4.27	5.51	47	50	98	96	210	548	5.87	6.44	11.7	71	78	97	93	9.2	6.4	6.9	0.5	2	10	0.0001	0.09	0	0	0
02/28/2011	1.731	3.304	1.637	3.224	273	348	3.86	4.65	5.2	61	78	99	96	196	346	5.5	7.46	7.67	89	117	97	94	8.7	6.6	7.2	0.5	2	2	0.00012	0.08	0	0	0
03/31/2011	2.152	4.572	2.055	4.492	202	274	3.55	3.9	4.36	60	69	98	97	182	265	5.67	8.34	10.67	100	149	97	93	7.1	6.6	7.3	NOD=B	2	4	0.0001	0.23	0	0	0
04/30/2011	2.654	6.992	2.559	6.905	167	277	3.12	3.25	4.04	82	125	98	97	179	326	3.56	5.33	6	101	222	98	96	5.1	6.5	7.5	0.5	2	2	0.0001	0.59	0	0	0
05/31/2011	2.852	7.28	2.767	7.2	149	235	4.07	5.98	9.44	99	141	96	88	159	233	11.8	21.1	32.8	273	383	92	81	6.1	6.5	7.4	0.5	3	40	0.000191	0.12	0	0	0
06/30/2011	1.464	2.754	1.383	2.584	279	414	3.38	4.3	7.18	44	62	99	98	341	636	4.36	8.88	8.33	55	117	99	97	5.5	6.5	7.2	0.5	3	36	0.0001	0.2	0	0	0
07/31/2011	1.132	1.505	1.056	1.425	263	307	3.08	3.73	5.06	28	36	99	98	331	459	3.17	6.78	10	29	63	99	97	5.5	6.6	7.1	0.5	9	178	0.0001	0.1	0	0	0
08/31/2011	1.075	1.64	0.999	1.57	251	356	2.87	2.9	2.93	28	28	99	98	289	382	3.74	4.55	6.67	32	38	99	97	5.1	6.4	7	NOD=B	3	48	NOD=B	0.05	0	0	0
09/30/2011	1.174	2.878	1.073	2.708	279	368	4.19	4.74	6.89	41	57.7	98	97	272	443	9.47	11	14.7	90	133	96	94	5.9	6.3	7.7	0.5	19	864	0.000153	0.11	0	0	0
10/31/2011	0.975	1.124	0.895	1.052	266	339	2.94	3.22	3.94	23	24.7	99	98	251	432	3.33	3.89	7	26	31	99	97	6.9	6	6.7	NOD=B	3	22	NOD=B	2.48	0	0	0
11/30/2011	1.635	3.867	1.559	3.577	214	324	3.12	3.33	4.26	48	64	98	95	243	405	3.44	5	7	58	104	98	94	7.6	6.1	6.7	NOD=B	3	34	0.0001	5.71	0	0	0
12/31/2011	2.275	6.498	2.171	6.368	170	371	3.7	4.29	6.79	84	113	98	95	148	264	5.21	8.34	10.67	121	187	96	86	8.8	6.2	7.2	0.5	2	4	0.0001	0.61	0	0	0



Covington STP (Rationale)  
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Covington STP DMR Results TN0020982 (page 2/2)

Month Ending Date	Influent Flow		Effluent Flow		Inf. BOD5		Eff. BOD5				BOD5 Removal		Inf. TSS		Eff. TSS				TSS Removal		D.O.	pH		Settleable	E. coli		Ag	TRC	Overflow		Bypass		
	M. Avg. (mgd)	D. Max. (mgd)	M. Avg. (mgd)	D. Max. (mgd)	M. Avg. (mg/L)	D. Max. (mg/L)	M. Avg. (mg/L)	W. Avg. (mg/L)	D. Max. (lb/day)	M. Avg. (lb/day)	M. Avg. (%)	D. Max. (%)	M. Avg. (mg/L)	D. Max. (mg/L)	M. Avg. (mg/L)	W. Avg. (mg/L)	D. Max. (lb/day)	M. Avg. (lb/day)	M. Avg. (%)	D. Max. (%)	M. Avg. (mg/L)	D. Min. (s.u.)	D. Max. (s.u.)	Solids (mL/L)	M. Avg. (cfu/100 mL)	D. Max. (cfu/100 mL)	D. Max. (mg/L)	D. Max. (mg/L)	(count)	(count)			
01/31/2012	1.935	4.229	1.863	4.159	236	390	4.41	5.64	7.56	69	86	98	96	207	333	6.03	9	10.67	92	142	97	95	8.8	6.3	7.5	NOD=B	3	54	NOD=B	0.17	0	0	0
02/29/2012	2.158	3.294	2.078	3.224	196	326	4.01	5.11	7.24	71	90	98	97	177	378	4.59	4.33	7.37	81	86	97	95	8.7	6.8	7.4	0.5	2	4	0.0001	0.33	0	0	0
03/31/2012	2.206	4.601	2.125	4.531	147	368	5.58	13.85	34.8	136	384	96	75	230	578	9.39	26.78	70	235	758	96	82	7.2	6.5	7.2	NOD=B	2	12	0.0001	0.2	0	0	0
04/30/2012	1.409	1.688	1.334	1.618	211	310	3.48	4.2	6.19	41	46	98	97	222	355	6.49	7	9.7	78	92	97	95	5.9	6.7	6.9	0.5	3	20	0.0001	0.2	0	0	0
05/31/2012	1.295	1.922	1.221	1.852	255	330	4.7	8.26	11.93	47	70.3	98	96	286	406	7.24	12.89	16.67	74	129	97	95	4.5	6.7	7.3	0.5	6	60	0.0001	0.06	0	0	0
06/30/2012	1.258	2.301	1.176	2.241	278	564	3.21	4.26	5.28	35	39	99	98	322	399	4.14	5.89	7	45	54	99	97	5.7	6.5	7.5	0.5	3	58	0.0001	0.13	0	0	0
07/31/2012	1.152	1.563	1.077	1.492	243	392	3.63	5.53	9.71	32	48	98	96	292	573	4.17	5.33	8.67	38	48	98	96	5	6.8	7.4	NOD=B	4	80	NOD=B	0.29	0	0	0
08/31/2012	1.131	1.456	1.049	1.367	291	531	6.81	13.9	25.5	61	128	98	91	325	440	9.83	15.8	27.7	90	142	97	88	4.8	6.5	6.9	0.7	5	144	0.0001	0.24	0	0	0
09/30/2012	1.324	2.963	1.218	2.883	226	286	3.01	3.41	4.5	28	33.3	99	97	254	396	5.81	12	29	54	113	98	86	6.3	6.3	7.1	0.5	8	46	0.0001	0.78	0	0	0
10/31/2012	1.2096	1.728	1.116	1.648	226	285	3.14	3.68	3.94	30	34	99	98	249	389	5.19	7.96	9.33	50	88.7	98	95	6.5	6.5	7	0.5	3	106	0.0001	0.11	0	0	0
11/30/2012	1.165	2.099	1.075	2.019	217	300	2.92	3.15	3.29	28	35	99	98	214	381	3.95	5.78	8.67	37	49	98	97	7.6	6.5	7.2	0.5	2	8	0.0001	0.32	0	0	0
12/31/2012	1.282	2.813	1.194	2.663	230	550	3.46	4.12	6.28	36	46.7	98	96	251	402	4.36	4.89	5.67	45	59.7	98	96	7.4	6.8	7.2	0.5	3	12	0.0001	0.06	0	0	0
01/31/2013	1.987	6.23	1.882	6.11	221	518	3.65	4.06	6.83	55	57	99	96	211	321	5.55	6.22	7.33	80	99	98	93	7.5	6.6	7.3	NOD=B	2	4	NOD=B	1.38	0	0	0
02/28/2013	2.078	4.497	2.002	4.315	224	305	4.09	5.98	7.93	82	159	98	97	233	403	5.02	7	12	106	193	97	93	8.9	7	7.4	0.5	2	2	0.0001	0.11	0	0	0
03/31/2013	1.852	2.423	1.752	2.353	241	369	5.68	7.19	7.63	87	106	97	95	230	556	8.47	10.8	12.67	131	155	95	90	8.9	7	7.1	0.5	6	1,080	0.0001	0.06	0	0	0
04/30/2013	2.51	5.773	2.433	5.703	177	272	5.07	5.98	7.39	105	169	97	92	197	274	8.33	12.1	13.3	170	309	96	93	6.5	6.4	7	0.5	2	8	0.0001	1.58	0	0	0
05/31/2013	2.651	5.198	2.577	5.138	186	320	3.62	6.04	8.84	68	114	98	96	239	447	7.41	9.22	13.33	139	196	96	93	6.2	6.5	7	NOD=B	2	8	NOD=B	0.18	0	0	0
06/30/2013	1.92	3.51	1.837	3.431	175	286	2.94	3.18	3.81	45	50.3	98	97	168	364	5.53	8.22	12	85	130	96	91	4.9	6.5	6.9	0.5	3	36	0.0001	0.06	0	0	0
07/31/2013	1.525	3.823	1.452	3.753	244	365	3.18	3.84	4.88	45	81.3	98	94	225	391	6.16	7.86	10.9	87	152	97	92	5.3	6.3	7.2	0.5	2	12	0.0001	0.03	0	0	0
08/31/2013	1.441	2.301	1.353	2.232	284	400	3.27	4.64	6	37	42	99	98	227	375	4.41	8.33	10	47	74	98	96	5.7	6.6	7.2	0.5	5	58	0.0001	0.03	0	0	0
09/30/2013	1.37	4.295	1.286	4.205	256	340	2.86	2.86	2.86	30	32	99	98	214	299	3.18	3.34	6.33	33	37	98	96	6.1	6.5	7.3	0.5	3	32	0.0001	0.05	0	0	0
10/31/2013	1.296	1.811	1.214	1.731	257	357	3.7	4.98	6.55	39	54	99	98	219	335	7.31	11.3	17	77	122	97	92	5.9	6.1	7	0.5	4	1,040	0.0001	0.04	0	0	0
11/30/2013	1.329	3.864	1.243	3.784	295	428	5.08	7.3	10.1	53	77.7	98	96	203	267	8.02	12.1	16.6	83	128	96	88	7.2	6.4	7.1	0.5	3	34	0.000131	0.05	0	0	0
12/31/2013	1.81	4.277	1.732	4.237	292	427	6.88	7.57	9.4	93	139	97	88	187	302	11.6	14.9	23.3	174	351	93	83	8.1	6.4	7.1	0.5	2	20	0.0001	6.45	0	0	0
01/31/2014	1.875	1.81	1.81	3.291	347	819	24.6	67.9	96.3	460	1,397	93	72	144	204	26.7	63.3	206	560	1,601	84	0	6.5	6.6	7.2	4.5	2	10	NOD=B	0.07	0	0	0
02/28/2014	2.505	5.933	2.406	5.833	288	468	11.4	13.8	14.5	233	295	96	90	162	212	10.2	12.8	16.7	222	337	93	87	8.4	6.4	7.1	0.5	2	2	0.0001	0.04	0	0	0
03/31/2014	3.09	5.266	3.019	5.206	154	252	5.59	7.96	10	141	231	96	90	153	266	6.64	10.3	12.3	166	299	95	92	6.3	6.3	7.3	0.5	2	2	0.0001	0.1	0	0	0
04/30/2014	2.178	5.216	2.136	5.716	167	340	3.77	4.22	5.52	69	98	97	96	167	395	6.59	6.78	17.7	121	113	96	89	6.3	6.2	6.6	0.5	0.5	1,488	0.0001	3.75	0	0	0
05/31/2014	1.847	3.346	1.787	3.286	210	303	3.49	3.98	4.56	57	62	98	97	209	259	6.72	8.88	13.33	103	134	97	94	5.1	6	6.8	0.5	1	8	0.0001	0.06	0	0	0
06/30/2014	2.178	5.216	2.136	5.716	167	340	3.77	4.22	5.52	69	98	NOD=X	NOD=X	167	395	6.59	6.78	17.7	121	113	NOD=X	NOD=X	6.3	6.2	6.6	NOD=B	0.5	1,488	NOD=B	3.75	0	0	NOD=X
Average	1.856	3.728	1.774	3.691	224	375	4	6	9	73	121	98	94	225	410	7	10	16	108	187	97	91	6.6	6.5	7.2	0.4	4	287	0.0001	0.7	0	0	0
Minimum	0.975	1.124	0.895	1.052	3	235	3	3	3	23	25	89	43	144	204	3	3	6	26	31	84	0	4.5	6	6.6	0.1	1	2	0.0001	0.03	0	0	0
Maximum	3.410	9.100	3.331	9.000	347	819	25	68	96	460	1,397	99	98	341	1043	27	63	206	560	1,601	99	97	9.2	7.1	7.8	4.5	19	8,640	0.0010	6.45	0	0	0
Permit Limit	Report	Report	Report	Report	Report	Report	30	40	45	906	1,208	85	40	Report	Report	30	40	45	906	1,208	85	40	1.0	6.0	9.0	1.0	126	487	0.00424	0.97	0	0	0
Exceedances	NA	NA	NA	NA	NA	NA	0	1	2	0	1	0	0	NA	NA	0	1	2	0	1	1	1	0	0	0	1	0	7	0	9	0	0	0

### Covington STP DMR Results TN0020982

Month Ending Date	Total Nitrogen				Total Phosphorus			
	Influent		Effluent		Influent		Effluent	
	(mg/L)	(lb/day)	(mg/L)	(lb/day)	(mg/L)	(lb/day)	(mg/L)	(lb/day)
06/30/2009	NODI=9	NODI=9	NODI=9	NODI=9	NODI=9	NODI=9	NODI=9	NODI=9
09/30/2009	20.9	322	3.57	52.4	6.59	710	3.13	46
12/31/2009	19.2	410	18.2	337	6.59	141	3.81	71
03/31/2010	23.1	539	13.1	296	5.46	127	2.71	61
06/30/2010	26.5	526	9.49	181	6.52	129	3.18	61
09/30/2010	28.5	339	21.5	244	9.96	118	6.07	68.7
12/31/2010	21.9	251	38.5	414	5.82	67	3.13	34
03/31/2011	18.6	277	10.6	150	3.65	54	1.42	20
06/30/2011	28.9	560	18.1	338	4.91	95	2.33	43
09/30/2011	50.7	445	37	303	4.64	40.7	3.25	26.6
12/31/2011	16.6	238	7.31	98.6	5.17	74.1	1.4	18.9
03/31/2012	14.1	325	6.28	141	1.98	46	0.929	21
06/30/2012	33.2	403	16.3	190	0.625	8	2.3	27
09/30/2012	31.8	362	21.2	205	4.07	46	1.48	14
12/31/2012	44.3	436	12.8	117	3.32	32.7	1.28	11.7
03/31/2013	30.5	507	16.8	273	2.15	35.8	0.792	12.9
06/30/2013	7.54	107	12.1	165	1.81	25.7	0.904	12.3
09/30/2013	24.2	270	14.2	149	2.69	30	1.56	16.4
12/31/2013	55.7	675	3.8	42.9	2.97	36	0.311	3.51
03/31/2014	15.6	576	9.62	355	1.34	49.4	0.247	9.11
Average	27	398	15	213	4	98	2	30
Minimum	7.54	107	3.57	42.9	0.625	8	0.247	3.51
Maximum	55.7	675	38.5	414	9.96	710	6.07	71
Permit Limit	Report	Report	Report	Report	Report	Report	Report	Report
Exceedances	0	0	0	0	0	0	0	0

Note: NODI=9 (Conditional Monitoring - Not Required)

### Covington STP DMR Results TN0020982

Month Ending Date	IC25	
	CD (%)	FM (%)
12/31/2009	NODI=9	NODI=9
12/31/2010	> 7.2	> 7.2
12/31/2011	> 7.2	> 7.2
12/31/2012	> 7.2	> 7.2
12/31/2013	> 7.2	> 7.2
Average	--	--
Minimum	> 7.2	> 7.2
Maximum	> 7.2	> 7.2
Permit Limit	> 1.8	> 1.8
Exceedances	0	0

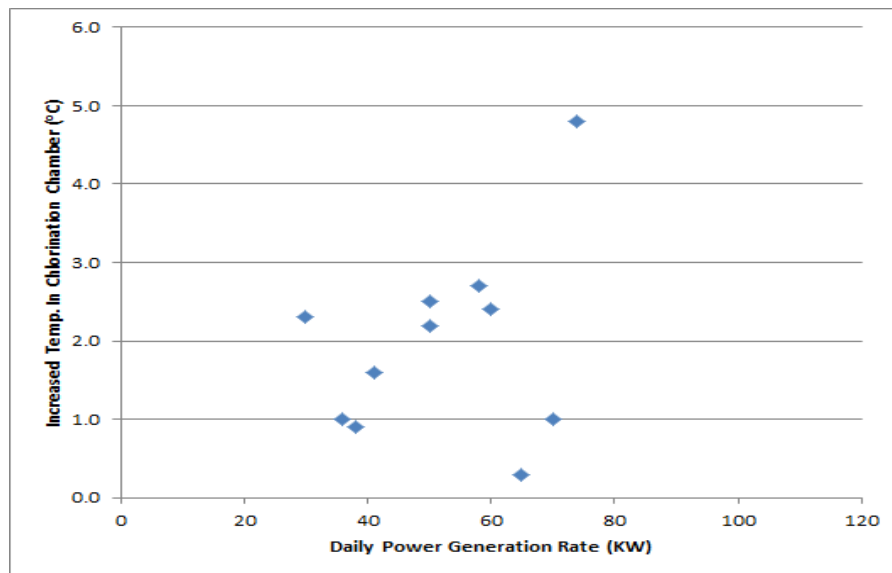
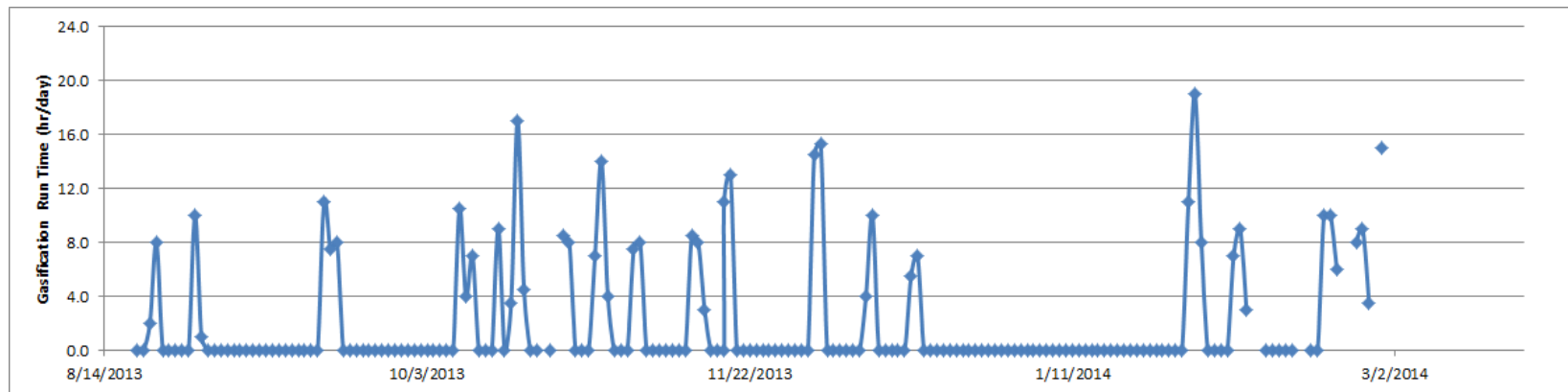
Note: NODI=9 (Conditional Monitoring - Not Required)

Covington STP TN0020982 - Gasification Facility Results for Operating Days

Date	WWTP						Hatchie River						Gasification Facility		
	Outfall 001 Flow		Chlorine Contact Chamber		Reaeration Ladder Effluent (c) (°C)	Discharge Pipe Effluent (d) (°C)	Upstream (e)		Downstream (f)		Depth (g) (ft)	Flow (mgd)	Operating Time	Duration (hr)	Output (KW)
	When Monitoring Temperature (mgd)	Daily (mgd)	Influent (a) (°C)	Effluent (b) (°C)			Surface (°C)	Mid-Depth (°C)	Surface (°C)	Mid-Depth (°C)					
8/21/2013	0.999	1.333	25.0	24.7	24.7	24.6	25.7	25.8	26.0	26.1	5.10		1400-1600	2.0	
8/22/2013	1.530	1.193	30.3	30.7	30.4	29.4	27.8	27.5	27.8	27.7	4.90		0900-1700	8.0	
8/28/2013	1.940	1.294	26.5	29.9	29.6	29.5	28.5	28.5	28.7	28.7	4.70		0700-1700	10.0	
8/29/2013	1.533	1.097	27.7	27.9	27.6	27.1	29.0	28.8	29.3	29.1	4.60		1100-1200	1.0	
9/17/2013	1.365	1.128	24.7	28.3	26.8	26.8	25.3	25.2	25.3	25.3	<4.0		0800-1900	11.0	
9/18/2013	1.392	1.206	24.8	28.2	28.3	27.8	26.9	25.6	25.6	25.9	<4.0		0700-1430	7.5	
9/19/2013	1.270	1.088	25.6	28.0	28.0	27.5	26.0	25.9	26.2	26.0	<4.0		0800-1600	8.0	
10/8/2013	1.650	1.338	20.7	24.6	23.5	23.5	20.5	20.7	20.7	20.8	5.80		0830-1900	10.5	
10/9/2013													0700-1100	4.0	
10/10/2013	1.470	1.363	22.1	23.7	23.4	23.1	20.5	20.4	20.5	20.4	5.80		1030-1730	7.0	
10/14/2013	1.354	1.212	22.8	25.6	25.1	24.8	20.7	20.6	20.8	20.7	5.30		0800-1700	9.0	
10/16/2013	2.330	1.780	21.8	21.8									0800-1130	3.5	
10/17/2013	1.591	1.405	21.5	21.5	25.0	23.3	23.1	19.4	19.4	19.4	5.10		0700-2400	17.0	
10/18/2013	1.447	1.195	20.6	22.7	22.3	22.1	18.7	18.7	19.0	18.8	4.90		1300-1730	4.5	
10/24/2013	1.248	1.390	18.4	22.0	20.5	20.5	15.8	15.8	15.8	16.0	5.5		0830-1700	8.5	
10/25/2013		1.034	17.2	18.7	18.6	18.3	13.7		14.0	14.5	5.4		0900-1700	8.0	
10/29/2013	1.512	1.181	18.8	20.4	20.3	20.2	15.8	15.2	15.7	15.3	4.9		1300-2000	7.0	
10/30/2013	1.920	1.283	20.2	22.2	22.2	22.1	16.6	16.2	17.5	16.4	4.9		0400-1800	14.0	
10/31/2013		1.811											0800-1200	4.0	
11/4/2013		1.198											1500-2230	7.5	
11/5/2013	1.430	1.223	17.1	19.1	18.9	18.7	14.7	14.6	15.1	14.7	7.1		0800-1600	8.0	
11/13/2013	1.945	1.131	13.4	15.2	14.9	14.8	10.2	10.2	10.8	10.5	5.8		0900-1730	8.5	
11/14/2013	1.916	1.312	12.8	12.8	13.0								0900-1700	8.0	
11/15/2013	1.240	1.318											0800-1100	3.0	
11/18/2013	1.546	1.303	18.0	20.7	18.8	--							1300-2400	11.0	58
11/19/2013	0.880	1.255	16.0	20.8	19.2	18.7	11.4	11.3	11.6	11.4	5.7		0000-1300	13.0	74
12/2/2013	1.389		14.2	15.9	15.8								0930-2400	14.5	
12/3/2013			15.3	17.0	16.8	16.8	7.6	7.5	7.8	7.8	7.4	43	0000-1520	15.3	
12/10/2013													1700-2100	4	101
12/11/2013	1.703		10.4	11.4	11.1								0700-1700	10	70
12/17/2013	1.463		12.2	13.8	13.6								1200-1730	5.5	41
12/18/2013	1.711		12.0	14.3	13.5								900-1500	7	30
1/29/2014													1300-2400	11	
1/30/2014	1.319		6.8	9.0	8.9								0000-1900	19	50
1/31/2014	1.825		8.2	9.2	9.4								0700-1500	8	36
2/5/2014	4.0	3.707	8.7	9.6	9.5								1200-1900	7	38
2/6/2014	3.070	2.988	8.0	8.3	8.3	9.1					16.4		1000-1900	9	65
2/7/2014													0800-1100	3	
2/19/2014	2.267	2.126	14.2		16.6								0900-1900	10	86
2/20/2014	1.843		14.9		17.2								0700-1700	10	81
2/21/2014	2.049	2.864	13.8		15.4								0730-1330	6	73
2/24/2014		2.118	11.8		14.2								0930-1730	8	95
2/25/2014	1.292	2.036	11.1	13.5	12.9	12.0					14.0		0930-1830	9	60
2/26/2014	1.454	1.939	9.4		10.6								0730-1100	3.5	56
2/28/2014	1.452	1.828	9.1	11.6	10.5								0000-1500	15	50

- (a) Flash-mix chamber  
 (b) At effluent weir  
 (c) Just before discharge pipe  
 (d) Discharge pipe effluent  
 (e) Hatchie River approximately 500 ft upstream of confluence with the Outfall 001 discharge. Measured on the River's south side.  
 (f) Hatchie River approximately 900 ft downstream of confluence with the Outfall 001 discharge. Measured on the River's south side upstream of RR bridge.  
 Note: Until September 2, 2013 the downstream measurements were taken approximately from the U.S. Hwy 51 bridge, which is about 1 mile from Outfall 001 discharge's confluence with the Hatchie River.  
 (g) USGS gage approximately 200 ft downstream of confluence with the Outfall 001 discharge.

Chronological Plot – Demonstrates Intermittent Gasification Facility Operations



Gasification Facility – Nominal Full Operation Power Generation Capacity = 125 KW

## APPENDIX R-4

### METAL AND TOXIC PARAMETER CALCULATIONS

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The following procedure is used to calculate the allowable instream concentrations for pass-through guidelines and permit limitations.

- a. The most recent background conditions of the receiving stream segment are compiled. This information includes:
  - \* 7Q10 of receiving stream (204 MGD, USGS)
  - \* Calcium hardness (148 mg/l)
  - \* Total suspended solids (30 mg/l, default)
  - \* Background metals concentrations (½ water quality criteria)
  - \* Other dischargers impacting this segment (none)
  - \* Downstream water supplies, if applicable
- b. The chronic water quality criteria are converted from total recoverable metal at lab conditions to dissolved lab conditions for the following metals: cadmium, copper, trivalent chromium, lead, nickel and zinc. Then translators are used to convert the dissolved lab conditions to total recoverable metal at ambient conditions.
- c. The acute water quality criteria are converted from total recoverable metal at lab conditions to dissolved lab conditions for the following metals: cadmium, copper, trivalent chromium, lead, nickel, zinc and silver. Then translators are used to convert the dissolved lab conditions to total recoverable metal at ambient conditions for the following metals: cadmium, copper, lead, nickel and silver.
- d. The resulting allowable trivalent and hexavalent chromium concentrations are compared with the effluent values characterized as total chromium on permit applications. If reported total chromium exceeds an allowable trivalent or hexavalent chromium value, then the calculated value will be applied in the permit for that form of chromium unless additional effluent characterization is received to demonstrate reasonable potential does not exist to violate the applicable state water quality criteria for chromium.
- e. A standard mass balance equation determines the total allowable concentration (permit limit) for each pollutant. This equation also includes a percent stream allocation of no more than 90%.

The following formulas are used to evaluate water quality protection:

$$C_m = \frac{Q_s C_s + Q_w C_w}{Q_s + Q_w}$$

where:

C<sub>m</sub> = resulting in-stream concentration after mixing  
C<sub>w</sub> = concentration of pollutant in wastewater  
C<sub>s</sub> = stream background concentration  
Q<sub>w</sub> = wastewater flow  
Q<sub>s</sub> = stream low flow

**to protect water quality:**

$$C_w \leq \frac{(S_A) [C_m (Q_s + Q_w) - Q_s C_s]}{Q_w}$$

where (S<sub>A</sub>) is the percent "Stream Allocation".

Calculations for this permit have been done using a standardized spreadsheet, titled "Water Quality Based Effluent Calculations." Division policy dictates the following procedures in establishing these permit limits:

1. The critical low flow values are determined using USGS data:

Fish and Aquatic Life Protection

7Q10 - Low flow under natural conditions

1Q10 - Regulated low flow conditions

Other than Fish and Aquatic Life Protection

30Q5 - Low flow under natural conditions

2. Fish & Aquatic Life water quality criteria for certain Metals are developed through application of hardness dependent equations. These criteria are combined with dissolved fraction methodologies in order to formulate the final effluent concentrations.
3. For criteria that are hardness dependent, chronic and acute concentrations are based on a Hardness of 25 mg/L and Total Suspended Solids (TSS) of 10 mg/L unless STORET or Water Supply intake data substantiate a different value. Minimum and maximum limits on the hardness value used for water quality calculations are 25 mg/L and 400 mg/L respectively. The minimum limit on the TSS value used for water quality calculations is 10 mg/L.
4. Background concentrations are determined from the division database, results of sampling obtained from the permittee, and/or obtained from nearby stream sampling data. If this background data is not sufficient, one-half of the chronic "In-stream Allowable" water quality criteria for fish and aquatic life is used. If the measured background concentration is greater than the chronic "In-stream Allowable" water quality criteria, then the measured background concentration is used in lieu of the chronic "In-stream Allowable" water quality criteria for the purpose of calculating the appropriate effluent limitation (C<sub>w</sub>). Under these circumstances, and in the event the "stream allocation" is less than 100%, the calculated chronic effluent limitation for fish and aquatic life should be equal to the chronic "In-stream Allowable" water quality criteria. These guidelines should be strictly followed where the industrial source water is not the receiving stream.

Where the industrial source water is the receiving stream, and the measured background concentration is greater than the chronic "In-stream Allowable" water quality criteria, consideration may be given as to the degree to which the permittee should be required to meet the requirements of the water quality criteria in view of the nature and characteristics of the receiving stream.

The spreadsheet has fifteen (15) data columns, all of which may not be applicable to any particular characteristic constituent of the discharge. A description of each column is as follows:

**Column 1:** The "Stream Background" concentrations of the effluent characteristics.

**Column 2:** The "Chronic" Fish and Aquatic Life Water Quality criteria. For cadmium, copper, trivalent chromium, lead, nickel, and zinc, this value represents the criteria for the dissolved form at laboratory conditions. The Criteria Continuous Concentration (CCC) is calculated using the equation:

$$CCC = (\exp \{ m_C [ \ln (\text{stream hardness}) ] + b_C \} ) (CCF)$$

CCF = Chronic Conversion Factor

This equation and the appropriate coefficients for each metal are from Tennessee Rule 1200-4-3-.03 and the EPA guidance contained in *The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From a Dissolved Criterion* (EPA 823-B-96-007, June 1996). Values for other metals are in the total form and are not hardness dependent; no chronic criterion exists for silver. Published criteria are used for non-metal parameters.

**Column 3:** The "Acute" Fish and Aquatic Life Water Quality criteria. For cadmium, copper, trivalent chromium, lead, nickel, silver, and zinc, this value represents the criteria for the dissolved form at laboratory conditions. The Criteria Maximum Concentration (CMC) is calculated using the equation:

$$CMC = (\exp \{ m_A [ \ln (\text{stream hardness}) ] + b_A \} ) (ACF)$$

ACF = Acute Conversion Factor

This equation and the appropriate coefficients for each metal are from Tennessee Rule 1200-4-3-.03 and the EPA guidance contained in *The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From a Dissolved Criterion* (EPA 823-B-96-007, June 1996). Values for other metals are in the total form and are not hardness dependent. Published criteria are used for non-metal parameters.

**Column 4:** The "Fraction Dissolved" converts the value for dissolved metal at laboratory conditions (columns 2 & 3) to total recoverable metal at in-stream ambient conditions (columns 5 & 6). This factor is calculated

using the linear partition coefficients found in *The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From a Dissolved Criterion* (EPA 823-B-96-007, June 1996) and the equation:

$$\frac{C_{\text{diss}}}{C_{\text{total}}} = \frac{1}{1 + \{ [K_{\text{po}}] [\text{ss}^{(1+a)}] [10^{-6}] \}}$$

ss = in-stream suspended solids concentration [mg/l]

Linear partition coefficients for streams are used for unregulated (7Q10) receiving waters, and linear partition coefficients for lakes are used for regulated (1Q10) receiving waters. For those parameters not in the dissolved form in columns 2 & 3 (and all non-metal parameters), a Translator of 1 is used.

- Column 5:** The "Chronic" Fish and Aquatic Life Water Quality criteria at in-stream ambient conditions. This criteria is calculated by dividing the value in column 2 by the value in column 4.
- Column 6:** The "Acute" Fish and Aquatic Life Water Quality criteria at in-stream ambient conditions. This criteria is calculated by dividing the value in column 3 by the value in column 4.
- Column 7:** The "Chronic" Calculated Effluent Concentration for the protection of fish and aquatic life. This is the chronic limit.
- Column 8:** The "Acute" Calculated Effluent Concentration for the protection of fish and aquatic life. This is the acute limit.
- Column 9:** The In-Stream Water Quality criteria for the protection of Human Health associated with the stream use classification of Organism Consumption (Recreation).
- Column 10:** The In-Stream Water Quality criteria for the protection of Human Health associated with the stream use classification of Water and Organism Consumption. These criteria are only to be applied when the stream use classification for the receiving stream includes both "Recreation" and "Domestic Water Supply."
- Column 11:** The In-Stream Water Quality criteria for the protection of Human Health associated with the stream use classification of Domestic Water Supply.
- Column 12:** The Calculated Effluent Concentration associated with Organism Consumption.
- Column 13:** The Calculated Effluent Concentration associated with Water and Organism Consumption.



**Column 14:** The Calculated Effluent Concentration associated with Domestic Water Supply.

**Column 15:** The Effluent Limited criteria. This upper level of allowable pollutant loading is established if (a) the calculated water quality value is greater than accepted removal efficiency values, (b) the treatment facility is properly operated, and (c) full compliance with the pretreatment program is demonstrated. This upper level limit is based upon EPA's 40 POTW Survey on levels of metals that should be discharged from a POTW with a properly enforced pretreatment program and considering normal coincidental removals.

The most stringent water quality effluent concentration from Columns 7, 8, 12, 13, 14, and 15 is applied if the receiving stream is designated for domestic water supply. Otherwise, the most stringent effluent concentration is chosen from columns 7, 8, 12, and 15 only.

## WQ Based Effluent Calculations

**Ammonia Nitrogen Aquatic Toxicity Calculations**

The State utilizes the EPA document, 1999 Update to Ambient Water Quality Criteria for Ammonia and assumed temperatures of 25°C and 15°C and stream pH of 8 to derive an allowable instream protection value. A mass balance with plant and stream flows and this allowable value determines the monthly average permit limit. Seasonal limits may also be allowed due to ambient temperature variations between the summer and winter seasons.

Due to the large dilution afforded by the receiving stream a pH value of 7.5 a.u. was used for the evaluation

<div style="border: 1px solid black; padding: 2px; display: inline-block;">           East TN- 25°C, 15°C            Middle TN- 27°C, 17°C            West TN- 30°C, 20°C         </div>			
<b>Winter</b>		<b>Summer</b>	
Temp (°C)=	20	Temp (°C)=	30
pH=	7.5	pH=	7.5
Min (2.85, 1.45*10 <sup>A</sup> 0.028*(25-T))	2.00	Min (2.85, 1.45*10 <sup>A</sup> 0.028*(25-T))	1.05
	2.85    2.00		2.85    1.05

$$CCC = \left( \frac{0.0577}{1+10^{(7.688-pH)}} + \frac{2.487}{1+10^{(pH-7.688)}} \right) * \text{Min} (2.85, 1.45*10^A 0.028*(25-T))$$

CCC= <span style="background-color: #ffff00;">3.06</span>	CCC= <span style="background-color: #ffff00;">1.61</span>
-----------------------------------------------------------	-----------------------------------------------------------

CCC - Continuous Chronic Criterion Allowable instream NH<sub>3</sub>-N concentration [mg/l]

$$CCC = \frac{(\text{Critical Low Flow [MGD]} * \text{Background Ammonia Nitrogen [mg/L]}) + (\text{Discharge Flow [MGD]} * \text{Effluent Concentration [mg/L]})}{(\text{Critical Low Flow [MGD]} + (\text{Discharge Flow [MGD]})}$$

where:

256	Critical Low Flow [MGD] (7Q10 value)
0.2	Background Ammonia Nitrogen Concentration [mg/L]
3.62	Outfall 001 Flow [MGD]

**Treated effluent NH<sub>3</sub>-N discharge concentrations and loadings for summer winter and summer conditions follow:**

<b>Winter</b>		<b>Summer</b>	
<b>206</b>	Concentration [mg/L]	<b>101</b>	Concentration [mg/L]
<b>6,209</b>	Amount [lb/day]	<b>3,056</b>	Amount [lb/day]

The permit renewal application included an average NH<sub>3</sub>-N = 0.1 mg/L and maximum daily NH<sub>3</sub>-N value = 0.1 mg/L. Therefore, discharge NH<sub>3</sub>-N limits are not warranted for the new permit.

2013 WQC

WATER QUALITY BASED EFFLUENT CALCULATIONS  
OUTFALL 001

FACILITY:  
Covington STP

PERMIT #:  
TN0020982

non-regulated stream worksheet (7Q10)

Stream (7Q10) [MGD]	Stream (30Q5) [MGD]	Waste Flow [MGD]	Ttl. Susp. Solids [mg/l]	Hardness (as CaCO3) [mg/l]	Margin of Safety [%]
204	256	3.62	30	148	50

1	2	3	4	5	6	7	8	9	10	11	12	13	14	Permit Renewal Application Avg/Max (3 Values) [ug/l]	PARAMETER	
PARAMETER	Stream Bckgrnd. Conc. [ug/l]	Fish/Aqua. Life (F & AL) lab conditions		Fraction Dissolved [Fraction]	F & AL - instream allowable ambient conditions (Tot)		Calc. Effluent Concentration based on F & AL		Human Health Water Quality Criteria *							
		Chronic [ug/l]	Acute [ug/l]		Chronic [ug/l]	Acute [ug/l]	Chronic [ug/l]	Acute [ug/l]	In-Stream Criteria			Calc. Effluent Concentration **				
									Organisms [ug/l]	Water/Organisms [ug/l]	DWS [ug/l]	Organisms [ug/l]	Water/Organisms [ug/l]	DWS [ug/l]		
Copper (a,b)	4.600	12.520	19.444	0.287	43.662	67.812	1122.49	1815.03	N/A	N/A	N/A	N/A	N/A	N/A	3.66/3.89	Copper (a,b)
Chromium III	3.300	102.176	785.487	0.190	537.181	4129.638	15311.65	118331.80	N/A	N/A	N/A	N/A	N/A	N/A	1.07/1.20	Chromium III
Chromium VI	0.000	11.000	16.000	1.000	11.000	16.000	315.44	458.83	N/A	N/A	N/A	N/A	N/A	N/A	-/-	Chromium VI
Chromium, Total	3.300	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.0	N/A	N/A	3469.23	1.07/1.20	Chromium, Total
Nickel (a,b)	10.000	72.460	652.388	0.322	224.743	2023.452	6163.14	57744.35	4.600	610	100	164.598	21520.47	3232.32	2.23/2.82	Nickel (a,b)
Cadmium (a,b)	0.161	0.323	2.948	0.281	1.151	10.507	28.48	296.77	N/A	N/A	5.0	N/A	N/A	173.60	<0.1/<0.1	Cadmium (a,b)
Lead (a,b)	2.000	3.846	98.695	0.153	25.107	644.300	663.65	18420.11	N/A	N/A	5.0	N/A	N/A	108.58	<0.5/<0.5	Lead (a,b)
Mercury (T) (c,e)	0.006	0.770	1.400	1.000	0.770	1.400	21.91	39.98	0.051	0.05	2.0	1.62	1.58	71.61	<0.2/<0.2	Mercury (T) (c,e)
Silver (a,b,f)	3.157	N/A	6.313	1.000	N/A	6.313	N/A	92.10	N/A	N/A	N/A	N/A	N/A	N/A	<0.100/<0.100	Silver (a,b,f)
Zinc (a,b)	6.300	164.686	163.350	0.226	728.439	722.529	20711.79	20542.30	26,000	7,400	N/A	932.114	265134.70	N/A	17.518.5	Zinc (a,b)
Cyanide (d)	2.600	5.200	22.000	1.000	5.200	22.000	75.86	557.63	140	140	200	4,928	4928.34	7079.89	<10/<10	Cyanide (d)
Toluene	0.000								15,000	1,300	1,000	537,887	46616.85	35859.12	<5.0/<5.0	Toluene
Benzene	0.000								510	22	5	18,288	788.90	179.30	<1.0/<1.0	Benzene
1,1,1 Trichloroethane	0.000								N/A	N/A	200.0	N/A	N/A	7171.82	<1.0/<1.0	1,1,1 Trichloroethane
Ethylbenzene	0.000								2,100	530	700	75,304	19005.33	25101.38	<1.0/<1.0	Ethylbenzene
Carbon Tetrachloride	0.000								16	2.3	5.0	574	82.48	179.30	<1.0/<1.0	Carbon Tetrachloride
Chloroform	0.000								4,700	57	N/A	168,538	2043.97	N/A	10.88/20.1	Chloroform
Tetrachloroethylene	0.000								33	7	5	1183	247.43	179.30	<1.0/<1.0	Tetrachloroethylene
Trichloroethylene	0.000								300	25	5	10758	896.48	179.30	<1.0/<1.0	Trichloroethylene
1,2 trans Dichloroethylene	0.000								10,000	140	100	358,591	5020.28	3585.91	<1.0/<1.0	1,2 trans Dichloroethylene
Methylene Chloride	0.000								5,900	46	N/A	211,569	1649.52	N/A	<1.0/<1.0	Methylene Chloride
Total Phenols	0.000								860,000	10,000	N/A	30,838,840	358591.16	N/A	<10/<10	Total Phenols
Naphthalene	0.000								N/A	N/A	N/A	N/A	N/A	N/A	<5.0/<5.0	Naphthalene
Total Phthalates	0.000								N/A	N/A	N/A	N/A	N/A	N/A	--	Total Phthalates
Chlorine (T. Res.)	0.000	11.000	19.000	1.000	11.000	19.000	630.89	1089.72	N/A	N/A	N/A	N/A	N/A	N/A	<0.05/780	Chlorine (T. Res.)

a. Denotes metals for which Fish & Aquatic Life Criteria are expressed as a function of total hardness.

b. The criteria for this metal is in the dissolved form at lab conditions. The calculated effluent concentration is in the total recoverable form.

c. The chronic criteria for mercury is not converted to dissolved, since it is based on fish tissue data rather than toxicity.

d. The criteria for this parameter is in the total form.

e. Previously, the Division established that 0.006 ug/L would be maximum background default if no sample data available or if all samples were <RDL (<0.2 ug/L), based on reference stream monitoring by DOE.

f. One analysis unless otherwise designated per "( )". Note: Total residual chlorine shown above based on 260 values.

\*\* Water Quality criteria for stream use classifications other than Fish & Aquatic Life are based on the 30Q5 flow.

## Pass-Through Evaluation Results

2013 WQC

**PASS-THROUGH LIMITATIONS FOR METALS AND OTHER TOXIC SUBSTANCES  
WATER QUALITY BASED EFFLUENT CALCULATIONS  
OUTFALL 001**

FACILITY: Covington STP      PERMIT #: TN0020982      DATE: 7/31/2014      CALC BY: GMDa

non-regulated stream worksheet (7Q10)

Stream (7Q10)	Stream (30Q5)	Waste Flow (MGD)	Ttl. Susp. Solids (mg/l)	Hardness (as CaCO3) (mg/l)	Margin of Safety (%)
204	256	3.62	30	148	50

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
PARAMETER	Stream Bckgnd. Conc.	Fish/Aqua. Life (F & AL) WQC lab conditions		Fraction Dissolved	F & AL - instream allowable ambient conditions (Tot)		Calc. Effluent Concentration based on F & AL		Human Health Water Quality Criteria *						effluent limited case ug/l	PARAMETER
	[ug/l]	Chronic	Acute	[Fraction]	Chronic	Acute	Chronic	Acute	In-Stream Criteria			Calc. Effluent Concentration **				
									Organisms	Water/Organisms	DWS	Organisms	Water/Organisms	DWS		
									[ug/l]	[ug/l]		[ug/l]	[ug/l]	[ug/l]		
Copper (a,b)	4.600	12 520	19.444	0.287	43.662	67.812	1122.49	1815.03	N/A	N/A	N/A	N/A	N/A	N/A	80.0	Copper (a,b)
Chromium III	3.300	102.176	785.487	0.190	537.181	4129.638	15311.65	118331.80	N/A	N/A	N/A	N/A	N/A	N/A		Chromium III
Chromium VI	3.300	11.000	16.000	1.000	11.000	16.000	222.46	365.85	N/A	N/A	N/A	N/A	N/A	N/A		Chromium VI
Chromium, Total	3.300	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.0	N/A	N/A	3469.23	60.0	Chromium, Total
Nickel (a,b)	10.000	72.460	652.388	0.322	224.743	2023.452	6163.14	57744.35	4600.0	610.0	100.0	164598.34	21520.47	3232.32	180.0	Nickel (a,b)
Cadmium (a,b)	0.161	0.323	2.948	0.281	1.151	10.507	28.48	296.77	N/A	N/A	5.0	N/A	N/A	173.60	5.0	Cadmium (a,b)
Lead (a,b)	2.000	3.846	98.695	0.153	25.107	644.300	663.65	18420.11	N/A	N/A	5.0	N/A	N/A	108.58	45.0	Lead (a,b)
Mercury (T) (c,e)	0.006	0.770	1.400	1.000	0.770	1.400	21.91	39.98	0.051	0.05	2.0	1.62	1.58	71.51	0.4	Mercury (T) (c,e)
Silver (a,b,f)	3.157	N/A	6.313	1.000	N/A	6.313	N/A	92.10	N/A	N/A	N/A	N/A	N/A	N/A	5.0	Silver (a,b,f)
Zinc (a,b)	6.300	164.686	163.350	0.226	728.439	722.529	20711.79	20542.30	26000.0	7400.0	N/A	932114.25	265134.70	N/A	200.0	Zinc (a,b)
Cyanide (d)	2.600	5.200	22.000	1.000	5.200	22.000	76.86	557.63	140.0	140.0	200.0	4928.34	4928.34	7079.89	230.0	Cyanide (d)
Toluene	0.000								15000.0	1300.0	1000.0	537886.74	46616.85	35859.12	15.0	Toluene
Benzene	0.000								510.0	22.0	5.0	18288.15	788.90	179.30	3.0	Benzene
1,1,1 Trichloroethane	0.000								N/A	N/A	200.0	N/A	N/A	7171.82	30.0	1,1,1 Trichloroethane
Ethylbenzene	0.000								2100.0	530.0	700.0	76304.14	19005.33	25101.38	4.0	Ethylbenzene
Carbon Tetrachloride	0.000								16.0	2.3	5.0	573.75	82.48	179.30	15.0	Carbon Tetrachloride
Chloroform	0.000								4700.0	57.0	N/A	168537.85	2043.97	N/A	85.0	Chloroform
Tetrachloroethylene	0.000								33.0	6.9	5.0	1183.35	247.43	179.30	25.0	Tetrachloroethylene
Trichloroethylene	0.000								300.0	25.0	5.0	10757.73	896.48	179.30	10.0	Trichloroethylene
1,2 trans Dichloroethylene	0.000								10000.0	140.0	100.0	N/A	5020.28	3585.91	1.5	1,2 trans Dichloroethylene
Methylene Chloride	0.000								5900.0	46.0	N/A	211568.78	1649.52	N/A	50.0	Methylene Chloride
Total Phenols	0.000								860000.0	10000.0	N/A	30838839.78	358591.16	N/A	50.0	Total Phenols
Naphthalene	0.000								N/A	N/A	N/A	N/A	N/A	N/A	1.0	Naphthalene
Total Phthalates	0.000								N/A	N/A	N/A	N/A	N/A	N/A	64.5	Total Phthalates
Chlorine (T. Res.)	5.500	11.000	19.000	1.000	11.000	19.000	320.94	779.77	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chlorine (T. Res.)

- a Denotes metals for which Fish & Aquatic Life Criteria are expressed as a function of total hardness.  
b The criteria for this metal is in the dissolved form at lab conditions. The calculated effluent concentration is in the total recoverable form.  
c The chronic criteria for mercury is not converted to dissolved, since it is based on fish tissue data rather than toxicity.  
d The criteria for this parameter is in the total form.  
e Previously, the Division established that 0.006 ug/L would be maximum background default if no sample data available or if all samples were <RDL (<0.2 ug/L), based on reference stream monitoring by DOE.  
f Silver limit is daily max if column 8 is most stringent.  
g When columns 7 or 8 result in a negative number, use results from columns 5 or 6, respectively.  
h When columns 12, 13 or 14 result in a negative number, use results from columns 9, 10 or 11, respectively, as applicable.  
\* Domestic supply included in river use so pick from columns 7,8,12,13,14,15 or Domestic supply not included in river use so pick from columns 7, 8, 12 or 15.  
\*\* Water Quality criteria for stream use classifications other than Fish & Aquatic Life are based on the 30Q5 flow.

## SAR Summary

TN 0020982	PTL 1/30/2009	85% PTL	PTL 8/13/2014	Apr-14	Oct-13	April 2013	Oct-12	Apr-12	Oct-11	Apr-11	Oct-10	Apr-10	Oct-09
COPPER	<b>0.08000</b>	<b>0.06800</b>	<b>0.08000</b>	0.00721	0.00300	0.00300	0.00400	0.00400	0.00500	0.00320	0.00700	0.00500	0.00400
CHROMIUM, III	<b>report</b>	n/a	<b>report</b>	0.00100	0.01000	0.00100	0.01000	0.01000	0.01000	0.01000	0.01000		
CHROMIUM, VI	<b>report</b>	n/a	<b>report</b>	0.00001	0.01000	0.00100	0.01000	0.01000	0.01000	0.01000	0.01000		
CHROMIUM, TOTAL	<b>0.06000</b>	<b>0.05100</b>	<b>0.06000</b>	0.00100	0.00100	0.00100	0.00100	0.00100	0.00500	0.00500	0.00500	0.00500	0.00500
NICKEL	<b>0.18000</b>	<b>0.15300</b>	<b>0.18000</b>	0.00183	0.00200	0.00100	0.00300	0.00300	0.00300	0.00500	0.00500	0.00500	0.00500
CADMIUM	<b>0.00478</b>	<b>0.00406</b>	<b>0.00478</b>	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00200	0.00200	0.00200	0.00200
LEAD	<b>0.04500</b>	<b>0.03825</b>	<b>0.04500</b>	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00600	0.00600	0.00600	0.00600
MERCURY	<b>0.00040</b>	<b>0.00034</b>	<b>0.00040</b>	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020
SILVER	<b>0.00424</b>	<b>0.00360</b>	<b>0.00500</b>	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00500	0.00500	0.00500	0.00500
ZINC	<b>0.20000</b>	<b>0.17000</b>	<b>0.20000</b>	0.02260	0.01400	0.01600	0.01820	0.01860	0.03050	0.02640	0.02500	0.01900	0.02500
CYANIDE	<b>0.07442</b>	<b>0.06326</b>	<b>0.07586</b>	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000
TOLUENE	<b>0.01500</b>	<b>0.01275</b>	<b>0.01500</b>										
BENZENE	<b>0.00300</b>	<b>0.00255</b>	<b>0.00300</b>										
1,1,1 TRICHLOROETHANE	<b>0.03000</b>	<b>0.02550</b>	<b>0.03000</b>										
ETHYLBENZENE	<b>0.00400</b>	<b>0.00340</b>	<b>0.00400</b>										
CARBON TETRACHLORIDE	<b>0.01500</b>	<b>0.01275</b>	<b>0.01500</b>										
CHLOROFORM	<b>0.08500</b>	<b>0.07225</b>	<b>0.08500</b>										
TETRACHLOROETHYLENE	<b>0.02500</b>	<b>0.02125</b>	<b>0.02500</b>										
TRICHLOROETHYLENE	<b>0.01000</b>	<b>0.00850</b>	<b>0.01000</b>										
1,2 TRANS-DICHLOROETHYL	<b>0.00150</b>	<b>0.00128</b>	<b>0.00150</b>										
METHYLENE CHLORIDE	<b>0.05000</b>	<b>0.04250</b>	<b>0.05000</b>										
TOTAL PHENOLS	<b>0.05000</b>	<b>0.04250</b>	<b>0.05000</b>	0.00500	0.00500	0.00640	0.00670	0.00500	0.04200	0.04200	0.00500	0.00500	0.00500
NAPHTHALENE	<b>0.00100</b>	<b>0.00085</b>	<b>0.00100</b>										
TOTAL PHTHALATES	<b>0.06450</b>	<b>0.05483</b>	<b>0.06450</b>										

Bolded in effluent data exceeds 85% of proposed PTLs

Shaded means detection level

Summary (Part 1 of 4)

WATER QUALITY BASED EFFLUENT CALCULATIONS  
OUTFALL 001

FACILITY: Covington STP  
PERMIT: TN0020982

Stream (7Q10) [MGD]	Stream (30Q5) [MGD]	Waste Flow [MGD]	Ttl. Susp. Solids [mg/l]	Hardness (as CaCO3) [mg/l]	Margin of Safety [%]
204	256	3.62	30	148	50

PARAMETER	1	2	3	5	6	7	8	9	10	11	12	13	14	15
	Stream Bckgrmd. Conc. [ug/l]	Detection Levels		Fish/Aqua. Life Water Quality Criteria		Calculated Effluent Concentration		Human Health Water Quality Criteria (30Q5)						Permit Renewal Application (3 values) Avg/Max [ug/l]
		Scan MDL [ug/l]	WQC RDL *EPA MDL [ug/l]	Chronic [ug/l]	Acute [ug/l]	Chronic [ug/l]	Acute [ug/l]	In-Stream Criteria			Calculated Effluent Concentration			
								Organisms [ug/l]	Water/Org [ug/l]	DWS [ug/l]	Organisms [ug/l]	Water/Org [ug/l]	DWS [ug/l]	
ANTIMONY		5.0	3.0					640.0	5.6	6.0	22949.8	200.8	215.2	<10/<10
ARSENIC	7.3	1.0	1.0	150.0	340.0	4095.8	9544.4	10.0	10.0	10.0	100.5	100.5	100.5	<10/<10
BERYLLIUM		1.0	1.0							4.0			143.4	<1.0/<1.0
SELENIUM		3.0	2.0	5.0	20.0	143.4	573.5			50.0			1793.0	<10/<10
THALLIUM		10.0	*					0.47	0.24	2.0	16.9	8.6	71.7	<20/<20
ACROLEIN	0.0	10.0	1.0					290.0	190.0		10399.1	6813.2		<20/<20
ACRYLONITRILE	0.0	10.0	1.0					2.5	0.51		89.6	18.3		<20/<20
BENZENE	0.0	5.0	1.0					510.0	22.0	5.0	18288.1	788.9	179.3	<1.0/<1.0
BROMOFORM	0.0	5.0	1.0					1400.0	43.0		50202.8	1541.9		<1.0/<1.0
CARBON TETRACHLORIDE	0.0	5.0	1.0					16.0	2.3	5.0	573.7	82.5	179.3	<1.0/<1.0
CHLOROBENZENE	0.0	5.0	*					1600.0	130.0	100	57374.6	4661.7	3585.9	<1.0/<1.0
CHLORODIBROMO-METHANE	0.0	10.0	*					130.0	4.0		4661.7	143.4		2.50/4.26
CHLOROETHANE	0.0	10.0	*											<1.0/<1.0
2-CHLORO-ETHYL VINYL ETHER	0.0	10.0	*											<5/<5
CHLOROFORM	0.0	5.0	0.5					4700.0	57.0		168537.8	2044.0		10.88/20.1
DICHLOROBROMO-METHANE	0.0	5.0	1.0					170.0	5.5		6096.0	197.2		6.87/10.10
1,1-DICHLOROETHANE	0.0	5.0	1.0					NA	NA	NA	NA	NA	NA	<1.0/<1.0
1,2-DICHLOROETHANE	0.0	5.0	1.0					370.0	3.8	5.0	13267.9	136.3	179.3	<1.0/<1.0
TRANS 1,2-DICHLORO-ETHYLENE	0.0	5.0	*					10000	140.0	100.0	358591.2	5020.3	3585.9	<1.0/<1.0
1,1-DICHLOROETHYLENE	0.0	5.0	1.0					7,100	330	7.0	254599.7	11833.5	251.0	<1.0/<1.0
1,2-DICHLOROPROPANE	0.0	5.0	*					150.0	5.0	5.0	5378.9	179.3	179.3	<1.0/<1.0
1,3-DICHLORO-PROPYLENE	0.0	5.0	1.0					210.0	3.4		7530.4	121.9		<1.0/<1.0

Summary (Part 2 of 4)

WATER QUALITY BASED EFFLUENT CALCULATIONS  
OUTFALL 001

FACILITY: Covington STP  
PERMIT: TN0020982

Stream (7Q10) [MGD]	Stream (30Q5) [MGD]	Waste Flow [MGD]	Ttl. Susp. Solids [mg/l]	Hardness (as CaCO3) [mg/l]	Margin of Safety [%]
204	256	3.62	30	148	50

PARAMETER	1	2	3	5	6	7	8	9	10	11	12	13	14	15
	Stream Bckgrnd. Conc. [ug/l]	Detection Levels		Fish/Aqua. Life Water Quality Criteria		Calculated Effluent Concentration		Human Health Water Quality Criteria (30Q5)						Permit Renewal Application (3 values) Avg/Max [ug/l]
		Scan MDL [ug/l]	WQC RDL *EPA MDL [ug/l]	Chronic [ug/l]	Acute [ug/l]	In-Stream Criteria			Calculated Effluent Concentration					
						Organisms [ug/l]	Water/Org [ug/l]	DWS [ug/l]	Organisms [ug/l]	Water/Org [ug/l]	DWS [ug/l]			
ETHYLBENZENE	0.0	5.0	1.0					2100	530.0	700.0	75304.1	19005.3	25101.4	<1.0/<1.0
METHYL BROMIDE	0.0	10.0	*					1500.0	47.0		53788.7	1685.4		1.65/2.94
METHYL CHLORIDE	0.0	1.0	1.0											<1.0/<1.0
METHYLENE CHLORIDE	0.0	10.0	1.0					5900.0	46.0		211568.8	1649.5		<10.0/<10.0
1,1,2,2-TETRACHLORO-ETHANE	0.0	5.0	0.5					40.0	1.7		1434.4	61.0		<1.0/<1.0
TETRACHLORO-ETHYLENE	0.0	5.0	0.5					33.0	6.9	5.0	1183.4	247.4	179.3	<1.0/<1.0
TOLUENE	0.0	5.0	1.0					15000	1300.0	1000.0	537886.7	46616.9	35859.1	<5.0/<5.0
1,1,1-TRICHLOROETHANE	0.0	5.0	1.0							200.0			7171.8	<1.0/<1.0
1,1,2-TRICHLOROETHANE	0.0	5.0	0.2					160.0	5.9	5.0	5737.5	211.6	179.3	<1.0/<1.0
TRICHLOROETHYLENE	0.0	5.0	1.0					300.0	25.0	5.0	10757.7	896.5	179.3	<1.0/<1.0
VINYL CHLORIDE	0.0	10.0	2.0					24.0	0.25	2.0	860.6	9.0	71.7	<1.0/<1.0
P-CHLORO-M-CRESOL	0.0	10.0	*											<5/<5
2-CHLOROPHENOL	0.0	10.0	*					150.0	81.0		5378.9	2904.6		<5/<5
2,4-DICHLOROPHENOL	0.0	10.0	*					290.0	77.0		10399.1	2761.2		<5/<5
2,4-DIMETHYLPHENOL	0.0	10.0	*					850.0	380.0		30480.2	13626.5		<5/<5
4,6-DINITRO-O-CRESOL	0.0	20.0	24.0					280.0	13.0		10040.6	466.2		<10/<10
2,4-DINITROPHENOL	0.0	10.0	42.0					5300.0	69.0		190053.3	2474.3		<5/<5
2-NITROPHENOL	0.0	10.0	*											<5/<5
4-NITROPHENOL	0.0	10.0	*											<20/<20
PENTACHLOROPHENOL	0.0	20.0	5.0	15	19	430.2	544.9	30.0	2.7	1.0	1075.8	96.8	35.9	<5/<5
PHENOL	0.0	10.0	*					1700000	21000.0		60960497.2	753041.4		<5/<5



Summary (Part 3 of 4)

WATER QUALITY BASED EFFLUENT CALCULATIONS  
OUTFALL 001

FACILITY: Covington STP  
PERMIT: TN0020982

Stream (7Q10) [MGD]	Stream (30Q5) [MGD]	Waste Flow [MGD]	Ttl. Susp. Solids [mg/l]	Hardness (as CaCO3) [mg/l]	Margin of Safety [%]
204	256	3.62	30	148	50

	1	2	3	5	6	7	8	9	10	11	12	13	14	15
	Stream Bckgrnd. Conc. [ug/l]	Detection Levels		Fish/Aqua. Life Water Quality Criteria		Calculated Effluent Concentration		Human Health Water Quality Criteria (30Q5)						Permit Renewal Application (3 values) Avg/Max [ug/l]
		Scan MDL [ug/l]	WQC RDL *EPA MDL [ug/l]	Chronic [ug/l]	Acute [ug/l]	In-Stream Criteria			Calculated Effluent Concentration					
						Organisms [ug/l]	Water/Org [ug/l]	DWS [ug/l]	Organisms [ug/l]	Water/Org [ug/l]	DWS [ug/l]			
PARAMETER														
2,4,6-TRICHLOROPHENOL	0.0	10.0	2.7					24.0	14.0		860.6	502.0		<5/<5
ACENAPHTHENE	0.0	10.0	*					990.0	670.0		35500.5	24025.6		<2.0/<2.0
ACENAPHTHYLENE	0.0	10.0	2.3											<2.0/<2.0
ANTHRACENE	0.0	10.0	0.7					40000	8300.0		1434364.6	297630.7		<2.0/<2.0
BENZIDINE	0.0	10.0	*					0.0020	0.00086		0.072	0.0		<20/<20
BENZO(A)ANTHRACENE	0.0	10.0	0.3					0.18	0.038		6.5	1.4		<2/<2
BENZO(A)PYRENE	0.0	10.0	0.3					0.18	0.038	0.2	6.5	1.4	7.2	<2.0/<2.0
3,4 BENZO-FLUORANTHENE	0.0	10.0	0.3					0.18	0.038		6.5	1.4		<2.0/<2.0
BENZO(GH)PERYLENE	0.0	10.0	*											<2.0/<2.0
BENZO(K)FLUORANTHENE	0.0	10.0	0.3					0.18	0.038		6.5	1.4		<2.0/<2.0
BIS (2-CHLOROETHOXY)	0.0	10.0	*											<5/<5
BIS (2-CHLOROETHYL)-ETHER	0.0	10.0	1.0					5.3	0.30		190.1	10.8		<5/<5
BIS (2-CHLOROISO-PROPYL)	0.0	10.0	*					65000	1400.0		2330842.5	50202.8		<5/<5
BIS (2-ETHYLHEXYL) PHTHALATE	0.0	10.0	2.5					22.0	12.0	6.0	788.9	430.3	215.2	<10/<10
4-BROMOPHENYL PHENYL ETHER	0.0	10.0	*											<5/<5
BUTYL BENZYL PHTHALATE	0.0	10.0	*					1900.0	1500.0		68132.3	53788.7		<5.0/<5.0
2-CHLORONAPHTHALENE	0.0	10.0	*					1600.0	1000.0		57374.6	35859.1		<5.0/<5.0
4-CHLOROPHENYL PHENYL ETHER	0.0	10.0	*											<5/<5
CHRYSENE	0.0	10.0	2.5					0.18	0.038		6.5	1.4		<2.0/<2.0
DI-N-BUTYL PHTHALATE	0.0	10.0	2.5					4500.0	2000.0		161366.0	71718.2		<5.0/<5.0
DI-N-OCTYL PHTHALATE	0.0	10.0	*											<5.0/<5.0
DIBENZO(A,H) ANTHRACENE	0.0	10.0	*					0.18	0.038		6.5	1.4		<2.0/<2.0
1,2-DICHLOROBENZENE	0.0	5.0	2.0					1300.0	420.0	600	46616.9	15060.8	21515.5	<5/<5
1,3-DICHLOROBENZENE	0.0	5.0	2.0					960.0	320.0		34424.8	11474.9		<5/<5



Summary (Part 4 of 4)

WATER QUALITY BASED EFFLUENT CALCULATIONS  
OUTFALL 001

FACILITY: Covington STP  
PERMIT: TN0020982


Stream (7Q10) [MGD]	Stream (30Q5) [MGD]	Waste Flow [MGD]	Ttl. Susp. Solids [mg/l]	Hardness (as CaCO3) [mg/l]	Margin of Safety [%]
204	256	3.62	30	148	50

PARAMETER	1	2	3	5	6	7	8	9	10	11	12	13	14	15
	Stream Bckgrnd. Conc. [ug/l]	Detection Levels		Fish/Aqua. Life Water Quality Criteria		Calculated Effluent Concentration		Human Health Water Quality Criteria (30Q5)						Permit Renewal Application (3 values) Avg/Max [ug/l]
		Scan MDL [ug/l]	WQC RDL *EPA MDL [ug/l]	Chronic [ug/l]	Acute [ug/l]	Chronic [ug/l]	Acute [ug/l]	In-Stream Criteria			Calculated Effluent Concentration			
								Organisms [ug/l]	Water/Org [ug/l]	DWS [ug/l]	Organisms [ug/l]	Water/Org [ug/l]	DWS [ug/l]	
1,4-DICHLOROBENZENE	0.0	5.0	2.0					190.0	63.0	75	6813.2	2259.1	2689.4	<5/<5
3,3-DICHLOROBENZIDINE	0.0	10.0	*					0.28	0.21		10.0	7.5		<5/<5
DIETHYL PHTHALATE	0.0	10.0	1.9					44000	17000.0		1577801.1	609605.0		<5.0/<5.0
DIMETHYL PHTHALATE	0.0	10.0	1.6					1100000	270000.0		39445027.6	9681961.3		<5.0/<5.0
2,4-DINITROTOLUENE	0.0	10.0	1.0					34.0	1.1		1219.2	39.4		<5/<5
2,6-DINITROTOLUENE	0.0	10.0	*											<5/<5
1,2-DIPHENYLHYDRAZINE	0.0	10.0	*					2.0	0.36		71.7	12.9		<5/<5
FLUORANTHENE	0.0	10.0	2.2					140.0	130.0		5020.3	4661.7		<2.0/<2.0
FLUORENE	0.0	10.0	0.3					5300.0	1100.0		190053.3	39445.0		<2.0/<2.0
HEXACHLOROBENZENE	0.0	10.0	1.9					0.0029	0.0028	1.0	0.104	0.1	35.9	<5.0/<5.0
HEXACHLOROBUTADIENE	0.0	10.0	5.0					180.0	4.4		6454.6	157.8		<5/<5
HEXACHLOROCYCLO-	0.0	50.0	*					1100.0	40.0	50.0	39445.0	1434.4	1793.0	<5/<5
HEXACHLOROETHANE	0.0	10.0	0.5					33.0	14.0		1183.4	502.0		<5/<5
INDENO(1,2,3-CD)PYRENE	0.0	10.0	*					0.18	0.038		6.5	1.4		<2.0/<2.0
ISOPHORONE	0.0	10.0	*					9600	350.0		344247.5	12550.7		<5/<5
NAPHTHALENE	0.0	10.0	*											<5.0/<5.0
NITROBENZENE	0.0	10.0	10.0					690.0	17.0		24742.8	609.6		<5/<5
N-NITROSODI-N-PROPYLAMINE	0.0	10.0	*					5.1	0.050		182.9	1.8		<5/<5
N-NITROSODI- METHYLAMINE	0.0	10.0	*					30.0	0.0069		1075.8	0.2		<5/<5
N-NITROSODI-PHENYLAMINE	0.0	10.0	*					60.0	33.0		2151.5	1183.4		<10/<10
PHENANTHRENE	0.0	10.0	0.7											<2.0/<2.0
PYRENE	0.0	10.0	0.3					4000.0	830.0		143436.5	29763.1		<2.0/<2.0
1,2,4-TRICHLOROBENZENE	0.0	10.0	*					70.0	35.0	70.0	2510.1	1255.1	2510.1	<5/<5

- Columns 7-8, and 12-14 are the effluent concentrations allowable to prevent exceedence of water quality criteria.
- Potential to exceed criteria exists if the measured quantity in column 15 exceeds, or could exceed, the calculated allowable concentrations in columns 7-8, and 12-14.
- Additional testing is required if the detection level used in the scan is higher than the state RDL and/or the MDL of the approved EPA scan method and industry is known to have that pollutant.
- All background concentrations for these volatile organic, acid-extractable, and base-neutral compounds are assumed zero in the absence of supporting monitoring data.
- Other metals for which data were provided on the application are evaluated on the Metals & Toxics spreadsheet.
- Reasonable potential not demonstrated. In some cases, the MDLs are not sufficient to identify potential water quality problems.

## APPENDIX R-5 NEW PERMIT REQUIREMENTS

Description : External Outfall, Number : 001, Monitoring : All Weather, Season : All Year

Parameter 	Qualifier	Value	Unit	Sample Type	Frequency	Statistical Base
Bypass of Treatment	Report	-	occur/mo	Occurrences	Continuous	Monthly Total

Description : External Outfall, Number : 001, Monitoring : Dry Weather, Season : All Year

Parameter	Qualifier	Value	Unit	Sample Type	Frequency	Statistical Base
Overflow use, occurrences	Report	-	occur/mo	Occurrences	Continuous	Monthly Total

Description : External Outfall, Number : 001, Monitoring : Effluent Gross, Season : All Year

Parameter	Qualifier	Value	Unit	Sample Type	Frequency	Statistical Base
BOD, 5-day, 20 C	<=	40	mg/L	Composite	Three Per Week	Weekly Average
BOD, 5-day, 20 C	<=	1,208	lb/d	Composite	Three Per Week	Weekly Average
BOD, 5-day, 20 C	<=	906	lb/d	Composite	Three Per Week	Monthly Average
BOD, 5-day, 20 C	<=	30	mg/L	Composite	Three Per Week	Monthly Average
BOD, 5-day, 20 C	<=	45	mg/L	Composite	Three Per Week	Daily Maximum
Chlorine, total residual (TRC)	<=	0.97	mg/L	Grab	Five Per Week	Instantaneous Maximum
<i>E. coli</i>	<=	126	#/100mL	Grab	Three Per Week	Monthly Geometric Mean
<i>E. coli</i>	<=	487	#/100mL	Grab	Three Per Week	Daily Maximum
Flow	Report	-	Mgal/d	Continuous	Daily	Daily Maximum
Flow	Report	-	Mgal/d	Continuous	Daily	Monthly Average
IC25 Static Renewal 7 Day Chronic <i>Ceriodaphnia</i>	>	1.7	%	Composite	Annually	Minimum

IC25 Static Renewal 7 Day Chronic <i>Pimephales</i>	>	1.7	%	Composite	Annually	Minimum
Nitrogen, total (as N)	Report	-	lb/d	Composite	Quarterly	Quarterly Average
Nitrogen, total (as N)	Report	-	mg/L	Composite	Quarterly	Quarterly Average
Oxygen, dissolved (DO)	>=	1.0	mg/L	Grab	Five Per Week	Instantaneous Minimum
Phosphorus, total (as P)	Report	-	mg/L	Composite	Quarterly	Quarterly Average
Phosphorus, total (as P)	Report	-	lb/d	Composite	Quarterly	Quarterly Average
Settleable Solids	<=	1.0	mL/L	Grab	Five Per Week	Daily Maximum
Temperature rate of change deg. C/hr	Report	-	deg C	Continuous	Daily	Monthly Average
Temperature rate of change deg. C/hr	Report	-	deg C	Continuous	Daily	Daily Maximum
Temperature, water deg. C	Report	-	deg C	Continuous	Daily	Monthly Average
Temperature, water deg. C	Report	-	deg C	Continuous	Daily	Daily Maximum
Total Suspended Solids (TSS)	<=	1,208	lb/d	Composite	Three Per Week	Weekly Average
Total Suspended Solids (TSS)	<=	40	mg/L	Composite	Three Per Week	Weekly Average
Total Suspended Solids (TSS)	<=	906	lb/d	Composite	Three Per Week	Monthly Average
Total Suspended Solids (TSS)	<=	45	mg/L	Composite	Three Per Week	Daily Maximum
Total Suspended Solids (TSS)	<=	30	mg/L	Composite	Three Per Week	Monthly Average
pH	>=	6.0	SU	Grab	Five Per Week	Minimum
pH	<=	9.0	SU	Grab	Five Per Week	Maximum

**Description : External Outfall, Number : 001, Monitoring : Percent Removal, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
BOD, 5-day, 20 C, % removal	>=	85	%	Calculated	Three Per Week	Monthly Average Minimum
BOD, 5-day, 20 C, % removal	>=	40	%	Calculated	Three Per Week	Daily Minimum
TSS, % removal	>=	85	%	Calculated	Three Per Week	Monthly Average Minimum
TSS, % removal	>=	40	%	Calculated	Three Per Week	Daily Minimum

**Description : External Outfall, Number : 001, Monitoring : Raw Sewage Influent, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
BOD, 5-day, 20 C	Report	-	mg/L	Composite	Three Per Week	Daily Maximum
BOD, 5-day, 20 C	Report	-	mg/L	Composite	Three Per Week	Monthly Average
Flow	Report	-	Mgal/d	Continuous	Daily	Monthly Average
Flow	Report	-	Mgal/d	Continuous	Daily	Daily Maximum
Nitrogen, total (as N)	Report	-	lb/d	Composite	Quarterly	Quarterly Average
Nitrogen, total (as N)	Report	-	mg/L	Composite	Quarterly	Quarterly Average
Phosphorus, total (as P)	Report	-	mg/L	Composite	Quarterly	Quarterly Average
Phosphorus, total (as P)	Report	-	lb/d	Composite	Quarterly	Quarterly Average
Total Suspended Solids (TSS)	Report	-	mg/L	Composite	Three Per Week	Daily Maximum
Total Suspended Solids (TSS)	Report	-	mg/L	Composite	Three Per Week	Monthly Average

**Description : External Outfall, Number : 001, Monitoring : Wet Weather, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Overflow use, occurrences	Report	-	occur/mo	Occurrences	Continuous	Monthly Total